619.05
V587
v.23

DEC 23 '27

# Veterinary Medicine

VOL. ~~XXIV~~ XXIII JANUARY, 1928 No. 1

Published Monthly by the Veterinary Magazine Corporation
4753 South Parkway, Chicago, Ill., U. S. A.
$4.00 a Year
Entered as second-class matter, July 19, 1910, at Chicago, Ill., under Act of Congress of March 3, 1873
Copyrighted 1927, by Veterinary Magazine Corporation
D. M. Campbell, Editor A. T. Kinsley, Associate Editor

A final check of the registration at the Philadelphia meeting of the A. V. M. A. has shown it to have been 805. This is greater than was at first estimated and places the Philadelphia meeting in point of attendance ahead of the Lexington meeting and approximately the same as the Montreal meeting.

---

The dates decided upon for the 1928 meeting of the A. V. M. A. are August 7-10. A more convenient date for both practitioners and school men could not be found and pleasant weather may be expected in Minneapolis on those dates. The Iowa and Nebraska state veterinary associations do not hold summer meetings. It is expected that Minnesota, Wisconsin, South Dakota and perhaps Illinois and the Missouri Valley associations will dispense with their summer meetings this year and make the Minneapolis meeting of the A. V. M. A. the one big meeting in this section for the summer. If this plan is followed the attendance should exceed that of the Des Moines meeting, making it the most largely attended meeting ever held by the A. V. M. A.

---

The British Veterinary Ministry will cooperate in testing the B. C. G. vaccine of calmette on some dairy herds in England. The tentative plans for the test are to vaccinate all calves in known tubercular herds within two weeks after they are born, repeating the vaccination every twelve months for a period of five years. The results of this experiment will no doubt be published.

Tularemia has been identified in coyotes. The transmission of the *B. Tularense* by the bite of the coyote has apparently been proved beyond question. The transmission of the disease from infected rabbits to coyotes has been demonstrated.

---

Ammonium chlorid administered orally, Wenner found, was efficacious in the prevention of tetany in parathyroidectomized dogs. Dogs in violent tetany recover within one and one-half hours after receiving from 100 to 200 cc. of a 5 per cent solution of ammonium chlorid.—*Jour. A. M. A.*

---

There can be no question that Pasteurization is the most potent single force operating today to prevent the transmission of milk-borne diseases. In most fields of public health however, actual practice tends to fall short of the laboratory ideal, and the conviction has recently become acute that this is true of commercial Pasteurization.—*U. S. Public Health Reports.*

---

The report of the committee on infectious diseases of the United States Live Stock Sanitary Association showed that the prevalence of foot and mouth disease had decreased during the year in all European countries.

128670

---

No glanders occurred in 26 states in 1927. The infection appeared in 22 states, only a few cases in each state, however, except in California where 154 cases were found. These occurred, in a single locality and California is believed to be entirely free from glanders at this time.

The rabbit industry is increasing rapidly. Rabbits are of value not only as food but also because of the skins that are being extensively used. Over 100,000,000 rabbit skins are used every year, of which more than 50,000,000 are dressed and dyed and made into fur for women's garments. The campaign hat of the American army is made of rabbit fur, but Australian fur is used.

---

With more than a billion dollars a year to the credit of the business she creates, the American hen now stands third in the branches of the livestock industry. She accounted for about 16 per cent of the total value of all livestock and its products for 1926, and only the dairy industry with 40 per cent and the swine industry with 22 per cent rank higher.

---

Poultry diseases are important in the United States because the American hen is responsible for more than one-third of the world's supply of poultry and eggs. The American hen collectively lays at the rate of about 760 eggs a second or 2,000,000,000 dozen eggs a year.—*J. R. Mohler.*

---

More than 1,000 applications were received for admission to the freshman class at the Northwestern University Medical School this fall, it is reported. One hundred and twenty-two were accepted, and of these only five had just the minimum two years of college preparation. Fifty-five are said to have had a college degree and one a Ph.D.—*Jour. A. M. A.*

---

Veterinary medicine has to do with the conservation of the greatest industry of the United States, the livestock industry representing an investment of approximately $10,000,000,000. The responsibility of maintaining this great industry on an efficient and economical basis by animal disease control and cure is the work of the veterinarian. The disease problems are becoming greater each year and at the present time there is a shortage of qualified veterinarians to meet the demand for trained men in the various fields of veterinary medicine.—*C. H. Stange.*

Sorgo (the sweet sorgums) ensilage or fodder is a valuable roughage for cattle and has been used in conjunction with other feeds as a fattening ration for calves. Sorgo is a relatively common forage crop in western Texas and the adjacent country.

---

The Ohio Experiment Station recommends a fly-repellant spray made up of a saturate solution of oil of tar and Pyrethrum in kerosene, with a half-pint of cresol compound to the gallon, filter through cloth and apply lightly (as a mist) with a hand sprayer.

---

The average cost of producing calves on 112 New Mexico cattle ranches with from 301 to 500 breeding cows in the year 1925, was $30.80. One contributing factor in the apparent high priced calf production was the death loss, which was approximately 15 per cent of all cattle. The largest loss, about 12 per cent, was due to starvation.

---

Trypanblue is, according to some investigators, almost specific in the destruction of bovine piroplasma. Trypanblue destroys the piroplasma. The dosage should be governed by the extent of parasitic infestation. In animals slightly infested, one gram made up in a one per cent solution to each 100 kilogram body weight should be administered intravenously. The injection of the trypanblue is followed within an hour or two by a rise of temperature and in some cases severe clinical symptoms due to the action of poisons liberated from the destroyed piroplasma. Unless the reaction has been severe, the temperature returns to normal within six or eight hours and a complete recovery usually occurs. In those cases in which there are marked symptoms probably due to excessive numbers of piroplasma, the dosage should be reduced to 0.2 grams per 100 kilogram body weight, and repeated in three or four days, or the reaction may be sufficiently severe to kill the animal. (Trop. Vet. Bul. No. 15-3.)

No doubt some readers of VETERINARY MEDICINE have an opportunity to use trypanblue in cases of tick fever.

More cities in Texas have adopted the standard milk ordinance than cities in any other state in the Union. According to the state department of health, thirty-four towns have adopted this ordinance, and about a dozen others are planning its adoption. Milk sanitation, however, in some Texas towns is at a low ebb. A survey of municipalities is being made by the department to determine the status of milk supplies in regard to both sanitation and production, and as soon as possible an actual field survey of the dairies will be made. Dairies will be required to comply with sanitary regulations with regard to barns and equipment, tuberculin tested cows, screened milk houses, sterilized milk bottles, health certificates for milk handlers and provisions for cooling milk.—*Jour. A. M. A.*

---

No lesion tubercular reacting cattle is a perplexing problem that has some bearing on tuberculosis eradication. It is true that recent infection without visible lesions may account for the major portion if not all of no lesion reactors. If any of the no lesion cases are non-tubercular it is probably due to some condition in the animal that causes the reaction rather than variation of the tuberculin.

Although tuberculin is not standardized, it is usually a reliable product and probably is more constant in the production of an allergic reaction than is the animal body in which it is injected. It is, however, unfortunate that no definite method of standardization of tuberculin is available. Scientists not only in America, but also in practically all foreign countries, are concerned in standardizing tuberculin and at the present time, although no definite tests for strength of this product has been adopted, it is generally conceded that tuberculin produced by the growth of selected strains of tubercle bacilli in properly prepared medium for a sufficient length of time in flasks that have the proper relation of surface to content will be sufficiently constant and reliable for veterinary use.

Therefore, it may be stated without fear of contradiction, the properly prepared tuberculin is a reliable product that is indispensable in tuberculosis eradication.

In an investigation of the antirachitic properties of cod liver meal at the Ohio Agricultural Experiment Station, it was shown that this residue from the manufacture of cod liver oil varies widely. None of the brands tested were equivalent to cod liver oil as a preventive of leg weakness in fowls.

---

Of the 160 primary outbreaks of hog cholera in Maryland during October, 1927, 143 were apparently due to infected pork in garbage, table scraps or kitchen swill. Two were apparently due to infection washed in by the tide. One was due to the purchase of infected stock, and one to the double treatment. In 13 cases part of which were of doubtful diagnosis no history was obtained on which to base the source of infection. Of the 12 secondary outbreaks 10 were due to moving hogs from farm to farm, or permitting swine to run at large. Two cases were apparently due to a combination of unburied carcasses and dogs.—*I. K. Atherton.*

---

The Calmette method of the repeated vaccination of calves with tubercle bacilli of bovine origin that have been artificially cultivated in a bile medium sufficiently long to have lost their virulence but not the power of conferring a resistance to natural infection, is going to be given a trial in herds of cattle in England. These tests will be of considerable value in determining the value of tuberculosis immunization in cattle. However, such a method of controlling bovine tuberculosis may be applicable to some European countries, it will probably not appeal to cattlemen in America. In this relation it is common knowledge that the Bang system of controlling bovine tuberculosis that has been in use for many years in some European countries has not been accepted as a satisfactory method of controlling bovine tuberculosis in America, or at least in the United States. Detection of tuberculous animals by the tuberculin test and disposal by slaughter of reactors, is the favorite plan of controlling tuberculosis in this country.

## THE WAR ON PARASITES

"Yes, we are" is the reply of Dr. Maurice C. Hall to the question "Are we losing the war on parasites of live stock."

In a scholarly paper presented at the U. S. Live Stock Sanitary Association meeting, Dr. Hall pointed out that with but few exceptions, the areas infested with parasites of domestic animals is extending year by year, and these parasites are becoming more prevalent and taking a greater toll from the live stock industry, in most cases unhindered by any attempt at control measures on the part of live stock sanitary authorities.

Cattle and sheep scab are being held in check and possibly being driven back to some extent; the effective measures worked out for the control of ascarids in swine are receiving application only in the middle west, the west and southwest permitting the unimpeded extension of this parasite. Nodular disease of sheep has extended from southern states all through the central states and into the north and northwest. Liver flukes, formerly confined in the main to the southern states, are now widespread and extending their area yearly.

Dr. Hall attributes the great extension of the area infested by various animal parasites during recent years, to the unparalleled transportation systems of this country. Thus, man has made possible his own defeat in the war on parasites. Dr. Hall pointed out that no adequate defense measures are possible with the present forces. Forces in the field are inadequate to cope with the situation. Forces engaged in research work are inadequate in numbers to discover the basic principles and develop the procedures the field forces must have to successfully prosecute the war against parasites. This is chiefly because the action of parasites is insidious and lacking in the spectacular features necessary to attract attention and to bring about effective opposition.

Doctor Hall pointed out that aside from its public health value the federal meat inspection is of immense service in the war against parasites of domestic animals resulting in the destruction of millions of parasites (trichina cysticercus, etc.), that would otherwise continue their life cycles and ultimately reinfest animals.

## REPORT OF THE BUREAU OF ANIMAL INDUSTRY

The annual report of the Chief of the Bureau of Animal Industry just published, gives an interesting account of the work of the bureau for the fiscal year ending June 30, 1927. From it, it is noted that 9,700,000 cattle were tested in the work of tuberculosis eradication, this being an increase of more than 7 per cent over the number tested during the preceding year. This monumental achievement was made possible by the public support which resulted in the federal and state appropriations for this project aggregating nearly $18,000,000.

The result of a survey of parasites in live stock in Central America indicates that there is slight danger from this source to live stock of the United States from the importation of live stock from Central America.

The production of anti hog cholera serum exceeded one billion cubic centimeters, more than twice the amount produced during the preceding year, and approximately 50 per cent more than has been produced in any previous year. The widespread outbreak of cholera in 1926 and the unusual amount of spring vaccination in 1927 are responsible for this large increase.

There was a net gain of 12 entire counties and 5 parts of counties in the territory released from the tick fever quarantine. The floods in the lower Mississippi region during the year, facilitated tick eradication, all ticks in very considerable areas being destroyed by the overflow.

A world's survey of the live stock industry has shown that measures for the improvement of live stock are under way in most countries. The United States

compares favorably with other countries in the progress being made.

The employes of the bureau numbered 4,071 as compared with 4,045 for the previous year. 599 employes being separated from the service, and 625 added to it, the separations and additions being largely among the unclassified temporary employes. Approximately 100 veterinarians are required a year for Bureau replacements.

Nearly 20,000 doses of mallein and more than 14,000,000 doses of tuberculin were manufactured by the Bureau and supplied to Bureau employes and state employes engaged in live stock sanitary work.

In cooperation with state officials, more than 23 million inspections were made for sheep scabies and two and three-quarter million sheep were dipped. On the whole, sheep scabies was less prevalent than in 1926.

The inspections for cattle scabies were more than three million and nearly three-quarters of a million animals were dipped, showing a slight increase over the preceding year.

The eradication of dourine was undertaken in the Navajo Indian reservation and prosecuted vigorously, and good progress made in the work, which included among other things, the castration of 5,000 surplus stallions. Altogether, nearly 10,000 samples of blood serum were subjected to the complement fixation test for dourine, 7.5% gave a positive reaction.

Some tests in the handling of infectious abortion in cattle by keeping the reacting and non reacting animals in separate herds on the same farm failed to demonstrate the practicability of this measure.

The use of the term "no lesion cases" of tuberculosis has been supplanted by "non-visible lesion cases."

A total of slightly over 12,000,000cc of anti hog cholera serum was destroyed as unfit for use. 1,500,000cc of simultaneous virus and more than 11,000,000cc of hyperimmunizing virus was destroyed for the same reason.

Ten samples of commercial biological products prepared under Bureau licenses, were found unsatisfactory. This included one lot of natural aggressin which was found contaminated with type C botulinum toxin.

## U. S. LIVE STOCK SANITARY ASSOCIATION

The 31st annual meeting of the United States Live Stock Sanitary Association held in Chicago, November 30—December 2, was in point of attendance and interest, well up to recent meetings of that association, and that is saying a good deal for the association has come to be a powerful organization and to have a large influence upon livestock sanitary regulations and other matters concerned with disease control in the United States.

The character of the meetings of this association have changed considerably within a decade. The wide variety of subjects now given consideration and the large number of papers presented, precludes the extensive discussion from the floor that characterized these meetings in previous years.

Then too, the absence of some who have taken a very active part in the proceedings was conspicuous at the recent meeting and the effect, of course, was noticed. Dr. J. A. Kiernan, who for ten years has presented the subject of tuberculosis eradication and given an account of progress during the year, was prevented by illness* from attending this meeting and the discussion of this subject turned much upon its public health phases, a matter with which most of the members of the association are concerned, but indirectly.

The discussion of infectious abortion in cattle was also markedly different from that of former years. Not so long ago, a

* Dr. J. A. Kiernan, Chief of the Tuberculosis Eradication Division, B. A. I., died Dec. 13, 1927, of a heart attack; after this issue of VETERINARY MEDICINE had gone to press. Further details will be given next month.

report of the committee on infectious abortion was a subject for much discussion from the floor and Williams, Reichel, Schroeder and Giltner could be counted upon for no little excitement and much instructive information. At the recent meeting, Williams, Reichel and Schroeder were absent and Giltner was interested in other matters. The outstanding four horsemen at present, are Connaway, Munce, Fitch and Birch and they are so nearly in agreement that consideration of this subject seemed tame as compared with former years, although no less instructive.

The association adopted a resolution favoring the handling of infectious abortion as other infectious diseases are handled, by state quarantines, and that certificates of freedom from the disease as shown by the serum tests be required for interstate shipment. The only disagreement was as to the time for inaugurating such measures, some holding that the time has already arrived and others that it is a matter for future consideration.

The belief that infectious abortion can be handled on the farm by an adaptation of the Bang method for the control of tuberculosis seems to prevail with the majority, but there were not a few who questioned the practicability of such measures.

The selection of officers was entirely harmonious, but one nomination being made for each office. C. A. Cary of Alabama will head the association for the coming year, with J. P. Iverson, California, W. H. Hollingsworth, New York and A. L. Felker, New Hampshire as first, second and third vice-presidents. O. E. Dyson of Kansas was reappointed secretary-treasurer by the executive committee.

The association memoralized Congress in the interest of better salaries for the veterinarians employed by the Bureau of Animal Industry and reaffirmed its condemnation of placing biological agents used for diagnostic purposes or capable of producing disease in the hands of laymen. It also recommended that the mallein certificate be dispensed with as a requirement for interstate shipment of horses and mules.

It was a thoroughly enjoyable meeting, the attendance approaching 600.

## BIOGRAPHY OF H. J. DETMERS

Sometime ago mention was made in these columns of a booklet, "Prominent Men I Have Met," by Dr. L. H. Pammel of the Iowa State College. A second collection of this series of biographical sketches of men formerly connected with Doctor Pammel's institution who have achieved national or international prominence, has recently been issued. The first collection of articles contained among others biographies of Dr. Milikan Stalker, the first head of the veterinary department of the Iowa State College at Ames, and of James Wilson, for many years secretary of agriculture and as such, largely responsible for the development of the U. S. Bureau of Animal Industry.

The present collection contains a biographical sketch of Dr. H. J. Detmers, which like that of Doctor Stalker and Secretary Wilson, is of great interest to veterinarians.

Doctor Detmers was born in Germany in 1833; he spent six years, 1853-9, in study at various German veterinary colleges and the following six years in teaching and research in a German agricultural college. Coming to the United States in 1865, he began practice at Dixon, Ill., and edited the veterinary department of The Farm and Fireside.

In 1869 he became connected with the University of Illinois, where he taught veterinary science and livestock breeding for two years; then going to Kansas (1871), where he occupied a similar position in the agricultural college at Manhattan for a like period, going to the Iowa State College in 1873, then to the Ohio State University, where he established the School of Veterinary Medicine in 1884, from which he retired ten years later to engage in practice and the sale of swine plague preventive till his death in 1907 at the age of 74.

In 1878, he was employed by the United States Commissioner of Agriculture with a number of other veterinarians, including James Law, in the investigation of hog cholera. His acrimonious controversy with Salmon, Billings and Paquin is historic. He is described as a scholarly man, thoroughly grounded in science, and impatient with superficialities. Col. E. N. Wentworth, in "A Biographical catalog of the Portrait Gallery" of the Saddle and Sirloin, says of him: "The tenacity with which Dr. Detmers clung to his explanation of his discovery (swine plague organism) was a fair measure of his character. He knew that he was right, as far as his experience went, and he defended his position to the best of his ability against both friend and foe, and he encountered both. As a matter of fact, Dr. Detmers knew only two kinds of people, friends and foes, and with each kind he went the limit. For his friends, he knew no sacrifice too great; for his foes, no resistance too strong."

D. S. White and Mark Francis are numbered among the prominent veterinarians who were former students of Doctor Detmers.

## ARMY VETERINARY SERVICE

The annual report of the Surgeon General of the Army for the fiscal year ending June 30, 1927, has just been published. This report, like previous reports for a number of years, is a record of achievement by the 126 veterinarians that comprise the veterinary corps of the regular army, of which all of the profession may be justly proud.

The average number of animals in the service of the army during the period covered by the report was 41,232. The average number of veterinarians performing veterinary station service was 102, giving an average of 404 animals under the charge of each veterinary officer. The enlisted personnel in the veterinary service of the army, including 35 Philippine scouts, totaled 643.

The veterinary service of the army has many and varied duties to perform. Its problems include finance and supply; personnel, commissioned, enlisted and reserve; organization and planning; professional service, including meat inspection, milk inspection and forage inspection, as well as the responsibility for the health of government animals; instruction of training corps units, and training, administration and instruction of its own commissioned and enlisted personnel. Its record in these varying and exacting duties seem satisfactory to the Surgeon General, except in the matter of care of government animals.

The morbidity and the mortality of government animals, the Surgeon General tells us must be considered excessive. The admission to sick report rate was 549 per thousand and the death rate nearly 50. This represents a marked increase over the rates for the preceding year, and is the highest morbidity rate since 1920 and the highest mortality rate since 1918. This is in part explained by the increased number of new animals purchased with the attendant influenza and tinea, and to the large number of old animals inspected and condemned for pathological reasons.

Tinea continued prevalent throughout the year; influenza accounted for about 1,200 admitted to sick report and for 32 deaths; there were 15 cases of glanders, largely among new animals purchased in Texas; surra was more prevalent than during 1925; and canker accounted for 220 admissions to sick report and 30 deaths, as against 176 admissions and 20 deaths for the preceding year. It was the most important disease of the year, among army mules.

One veterinary officer was assigned to the Command and General Staff School at Fort Leavenworth; one officer to the Troop Officers' Course at the Cavalry School at Fort Riley; and ten officers completed the course of instruction at the Army Veterinary School at the Army Medical Center in Washington, and later the same class completed a course at Carlysle Barracks.

Veterinary units of Reserve Officers Training Corps were maintained at Cornell University, Ohio State University, Iowa State College and Kansas State Agricultural College, with a veterinary officer assigned to each as assistant professor of military science and tactics.

One section of this report is a reproach to the veterinary profession, the one concerning organized reserves. Of this, the Surgeon General says: "The reserve section, Surgeon General's office, makes every possible effort to increase the Veterinary Officers' Reserve. In this work it is assisted by the veterinary division and highly satisfactory relations are maintained. The veterinary profession as a whole has not supported the reserve as well as might be desired and there is a pronounced shortage of veterinary officers in almost every organization. A spirit of co-operation prevails between the Veterinary Corps and the profession at large and every possible effort is made to promote a feeling of good will through correspondence, active participation in meetings of professional societies, and by the exchange of literature."

There is no objection on the part of the veterinary profession engaged in civil pursuits to the way the veterinary corps of the army is administered, or to the handling of the reserves, or anything but good will for the army veterinary service. Its lack of support for the project to commission a reserve organization adequate to the needs of national defense is due to indifference alone, but indifference in a matter of this kind is a reproach.

There was a net gain of but 14 officers in the veterinary reserve for the year, bringing the total number to 1,055. This is the smallest gain of any service in the medical department, except the sanitary corps, which is a small corps numbering less than one-half that in the veterinary corps. The net increase in the medical reserve corps for the year was 831; in the dental reserve corps, 331; in the medical administrative corps, 253; and, as before stated, in the veterinary corps, but 14.

New York contains the largest number of veterinary reserve officers with 88; Iowa comes second with 86; Illinois third with 76; Ohio is fourth with 68; Pennsylvania is fifth with 53; and Kansas is sixth with 49 officers.

The promotion of the veterinary reserve corps should receive more attention from state and national veterinary organizations.

## BOOK REVIEWS

**A History of the Royal Army Veterinary Corps,**[1] by Major General Sir Frederick Smith, K.C.M.G., C.B., F.R.C.V.S. Again has General Smith laid the whole veterinary profession under a debt to him. This history containing a record of the veterinary service of the British army from its inception in 1796 (during the administration of George Washington) to the close of the World War, is more than a record of the army veterinary service; it reflects changes and progress of that part of the profession engaged in civil pursuits. The very name "Veterinary Surgeon" was not found in the English language until coined by the Board of General Officers in April 1796 for the designation of the army veterinarians.

General Smith entered the British army veterinary service in 1876 and was retired in 1910, after 34 years of service the last three years of which was at the head of the service, i.e., Veterinary Director General of the Army. He re-entered the army for home service during the World War and was discharged in 1919. It was during his incumbency in the office of Director General that the veterinary service of the British Army was reorganized and put in position to render the splendid service that it did render during the World War. A reorganization comparable to what our own army veterinary service has undergone since the passage of the National Defense Act of 1916.

[1] Published for the Royal Army Veterinary Corps Officers' Fund, by Bailliere, Tindall & Cox, No. 8 Henrietta St., Covent Garden, W. C. 2, London, England. Price including postage, 19 shilling.

DEC 23 '27



Having served in the army 39 years, including active participation in three wars, the Nile Expedition, the Boer War and the World War, having written text books from which two generations of veterinary students in Great Britain and America have been instructed, one would expect General Smith, upon retirement to rest upon his laurels. Instead he has published two volumes of his History of Veterinary Literature and is now at the age of more than three score years and ten, busily engaged upon the third and final volume of that inconceivably laborious task. This work was interrupted for a half dozen years by the history of the veterinary service of the army just completed.

This history is what would be expected from such an author; authoritative first of all, as comprehensive as indefatigable labor and painstaking search could make it; written from an intimate knowledge of his subject and with an entire frankness and freedom from prejudice. Of it, Prof. Hobday has said:

"This work, dedicated to the memory of William Percivall, the first veterinarian to receive a commission as an army veterinary surgeon, and written for the R. A. V. C. Officers' Fund, is the outcome as the author himself tells us, of a life-long study of military history, particularly that relating to the Veterinary Service.

"The result is a work packed from cover to cover with facts gathered from the original sources, and set out in an orderly and interesting manner.

"It tells of the early struggles for recognition, the success and the failures, the difficulties overcome and the prejudices lived down. The reader watches the organization grow, until, tested by the Great War, it was able at short notice to expand itself into a cadre of 1,681 officers and 40,000 men.

"The part played by the different Directors-General in the moulding of the Corps is told with singular insight, and with the frankness, untinged with prejudice, of the mind that comprehends the difficulties to be overcome."

---

**Topographical Anatomy of the Dog,**[2] by O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S. This is a revision of the author's "Notes on the Dissection of the Dog," and is made to take cognizance of the notable advance in canine surgery that the last few years has seen.

The versatile principal of the Royal (Dick) Veterinary College of Edinburgh believes that the veterinarian in his practice with the smaller domestic animals, may be reasonably expected, if necessary, to perform operations on his patients similar to any that the human surgeon performs on man and attempts here to give the fundamental working knowledge of anatomy that must precede such highly skilled surgery.

This object is well carried out. The work will prove invaluable to the veterinarian who does canine surgery of the better sort; it is indispensable to the veterinarian who would follow closely the specialist in human surgery.

The work is profusely illustrated and this will prove most attractive to the practitioner who has not time or the inclination for dissection. There are eighty illustrations, most of them in two or three colors and all exceptionally well executed. The descriptions are clear and remarkably concise, the arrangement of the test is convenient for reference.

The work is a valuable contribution to veterinary literature and should be welcomed by that growing body of veterinarians in this country who are giving increasing attention to small animal practice.

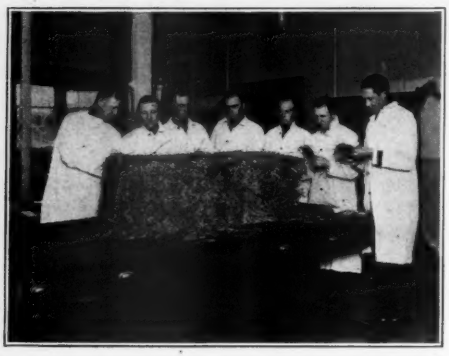
---

[2] Topographical Anatomy of the Dog, by O. Charnock Bradley, M.D., D.Sc., F.R.C.V.S., Principal of the Royal (Dick) Veterinary College, Edinburgh and Lecturer on Comparative Anatomy, University of Edinburgh. Published by Oliver and Boyd, Tweeddale Court, Edinburgh, Scotland. Price 24 shilliniga, net. (The book will be stocked by Alexander Eger, 9 S. Clinton St., Chicago, and supplied at $7.00, postage and duty paid.)

# Recent Important Discoveries and Developments by the Army Veterinary Corps*

CERTAIN far-reaching discoveries made by the veterinary officer on duty with the Medical Research Board, Manila, P. I., Major Raymond I. Kelser, are well worthy of a more general description than they have hitherto received.

Major Kelser, working over a long period of time but more especially during the outbreak of surra at Fort Wm. McKinley in the summer of 1926, has definitely determined that the fly known as Tabanus striatus is the chief insect involved in the transmission of surra, a fatal disease of solipeds of the tropics. In making this discovery, it was determined that the transmission was purely mechanical and that no part of the life cycle of the trypanosome was passed in the fly. These findings are of special importance since the main carrier being known it is only necessary to avoid its breeding places and to take all possible precautions to keep down the number of insects, in order to reduce greatly the incidence of the disease. The economic value to the Philippine Islands and other tropical countries of this discovery, as well as its extreme importance to the Army, is only too apparent.



**Hay and Grain Inspection Army Veterinary School.**

Another, and more important discovery of this officer, is a new and quicker method of preparing a reliable rinderpest vaccine. By the old methods several weeks were required for preparation, and then the product was so unstable and uncertain that it could only be kept in stock a short time. A laboratory procedure has been worked out whereby rinderpest vaccine is prepared by the attenuation of the virus with chloroform in a few days and exhaustive tests indicate that it is highly efficient and will keep for many weeks under the usual conditions attending the care of biologics.

The economic importance of this discovery is incalculable since the wealth of a large per cent of the population of the Islands is measured by the number of carabaos possessed. Any highly infectious and contagious disease which will sweep rapidly through such a country, resulting in a high rate of mortality among the animals of chief economic value, is little less than a national disaster.

The following figures give some indication of the importance of rinderpest:

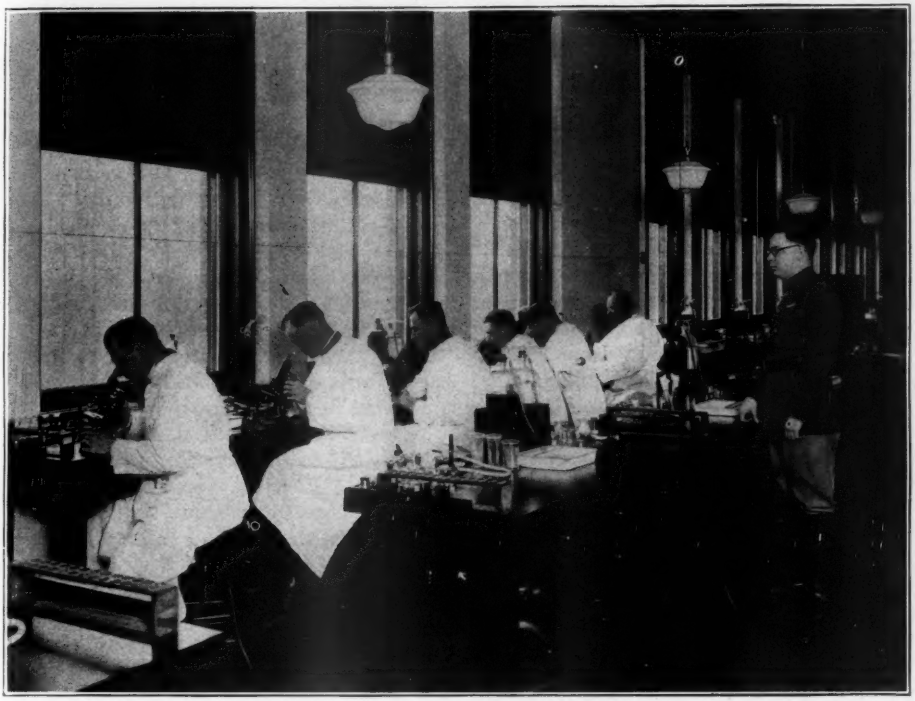
| Year | Number of animals affected | Deaths |
|---|---|---|
| 1921 | 45,000 | 35,000 |
| 1922 | 45,000 | 34,000 |
| 1923 | 27,000 | 22,000 |
| 1924 | 19,000 | 15,000 |
| 1925 | 15,000 | Not available |
| 1926 | 9,824 | Not available |

From the above it will be seen that approximately 106,000 head of cattle, carabao, etc., died as a result of rinderpest. Averaging these animals at $100.00 per head, the monetary loss for the four years on which figures are available is $10,600,000. With the new vaccine a large per cent of this loss will be prevented.

A civilian publication recently stated that this discovery of Major Kelser's will more

* From the Office of the Surgeon General of the Army.

than pay the entire cost of American occupation since Dewey sailed past Cavite. The late General Wood, Governor-General of the Philippine Islands, saw fit to commend



**The illustration shows the class at the Army Veterinary School, Washington, D. C., studying trypanosomes in the bacteriological laboratory in 1924. Major (then Captain) R. A. Kelser (standing) was the instructor. From the reader's left to right, the students comprise the following officers of the Veterinary Corps: Joseph F. Crosby; Isaac O. Gladish; Frank C. Hershberger; John H. Kintner; Daniel H. Mallen; Maximilian Siereveld, Jr.**

Major Kelser for his work. This officer has been invited to address the Congress of the Far Eastern Association of Tropical Medicine at Calcutta, India, on his work with rinderpest vaccine.

A third and almost equally great achievement of this officer is the elaboration of a successful treatment for epizootic lymphangitis. This disease has been a scourge of equines in the "Islands" and especially so amongst Army animals where it has materially advanced the sick and death rates and caused an enormous number of days of duty lost.

The Surgeon General's Annual Report for 1927 shows 102 cases of epizootic lymphangitis, with an average of 73 days of duty lost per case for the Philippine Department. With the new treatment, which consists of the intravenous injection of 0.5 gram mercuric iodid with 60 cc. sterile water, it is possible to effect a cure in a large per cent of cases and to reduce the "days of duty lost" by some 80 to 90 per cent.

A new and important contribution to veterinary and medical literature has been brought out in the publication of a "Manual of Veterinary Bacteriology" by Major Kelser. This work has been favorably received by the press and critics in general and no doubt constitutes the last word in veterinary bacteriology, serving to bring the many new discoveries in this field up to date.

## THE ULTRAVIOLET RAY TREATMENT OF LIVE STOCK

Recognition has always been given to the sun as the great life-saver and healer. Sun worship has been practiced in many countries for centuries. During the past few years a great deal of interest has been taken in heliotherapy, owing, no doubt, to the discovery that of the sun's rays the most beneficial are the short invisible ones, and that these can be reproduced by artificial means. The artificial sunlight work carried out in many hospitals and doctors' consulting rooms of this country shows that medical men are awake to the immense potentialities of this new treatment.

While a great deal of publicity has been given to the treatment of human beings by this means, less is heard of the use of these rays for the treatment of birds and animals, though a considerable amount of research work has already been done and some very definite results obtained. Some particularly valuable work has been done at the Rowett Research Institute, Aberdeen, the Kansas State Agricultural College and the Wisconsin University of Agriculture, Madison, Wisc., where it has been demonstrated that irradiation is as effective in the case of birds and animals as it is in its application to human beings.

Owing to absorption by dust and suspended moisture, the rays of the sun are not as effective for many purposes as the artificially produced rays. The ultraviolet rays of greatest therapeutic power appear to be those between 2,300A and 2,900A. The ultraviolet part of the solar radiation, after passing through the atmosphere, is chiefly between 2900 and 4000A. Thus it is not so effective.

The experiments conducted on animals have been carried out chiefly to determine the changes which irradiation produces in the blood and the effect of the absorption of lime and phosphorus which the ultraviolet rays cause.

Experiments carried out on pigs have shown that during the period of treatment the amount of calcium and phosphorus which the pigs were able to retain was considerably increased, and an analysis of the bones of the animals showed that those of the irradiated pigs contained a higher phosphorus and calcium content than did those of the control pigs living under exactly similar conditions but not irradiated.

The prevention of the loss of calcium and phosphorus from the body has also been found to be of value in the case of lactating animals. For instance, in the case of a heavy milk yielding cow, there is a tendency to lose more calcium and phosphorus in the first half of the lactation period than she can absorb in her daily ration, so that a supply has to be drawn from the store in her skeleton. This loss often causes a reduction in the milk yield, a loss of breeding capacity and abortion. By irradiating the animals it has been possible to decrease the net loss of calcium at the height of lactation, and, in one case, the net loss was actually converted into a net gain.

While the treatment of animals in this way is only in the experimental stage, it is claimed that the treatment of poultry is already of commercial value both in dealing with young chicks and egg production. Young chicks especially in the early part of the year are very susceptible to leg weakness, which is closely related to rickets. Results already obtained show that the ultraviolet treatment acting as a supplement to the antirachitis factor of foodstuffs minimizes this tendency. In the case of laying hens, experiments demonstrate that the number of eggs laid during the winter months can be considerably increased by irradiating the birds.

Ultraviolet ray irradiation is now being practiced by a number of racing stables. The method is being kept as secret as possible, as it is considered that horses thus irradiated are brought into better condition, especially during the winter racing season, and thus stand a better chance of winning, and users do not want competing stables to follow their example.

The unit for wave length measurement ordinarily used is the "Augstrom," written as "A" or "a." An Augstrom equals one ten-millionth of a millimeter or one ten-thousandth of a micron.

M. B. Matthews.

## THE USE OF GOAT VIRUS IN SIMULTANEOUS INOCULATION AGAINST RINDERPEST*

**(Preliminary Report)**

ACCORDING to the findings of several investigators, goats have an unusual resistance to natural infection with rinderpest. In fact, authentic reports of epizootics of rinderpest in these animals are rare. This increased resistance in goats apparently attenuates the virus of rinderpest. However, it has been demonstrated that sufficient virulence is maintained after the virus has been passed through the goat to produce a fatal attack of rinderpest when injected into cattle.

Teodulo Topacio, working in the Veterinary Research Laboratory, Pandacan, P. I., conceived the idea that it may be possible to obtain a virus by a single passage from cattle to goats that was sufficiently potent to infect Philippine cattle and carabaos and be sufficiently attenuated that the quantity of serum necessary for simultaneous inoculation could be materially reduced.

To test this principal Topacio prepared a goat virus as follows: 10 c.c. of citrated virulent cattle blood was injected subcutaneously into a goat and at the apex of the fever, blood was withdrawn from the jugular vein into a citrate solution and refrigerated if not used immediately. The goat virus was tested in 16 carefully arranged and executed experiments in which 29 cattle and 8 carabaos were used and in four field tests in which 273 carabaos were used. In some of the experiments the goat virus only was used, in others varying quantities of reactor serum and in one non-reactor serum was used in conjunction with the goat virus. The serum and virus was injected subcutaneously in all tests.

In general, it may be stated that the results of the experiments indicate:

1. The infectiousness of rinderpest virus is maintained after a single passage through goats. One c.c. of goat virus added to 4 c.c. of physiologic salt solution was sufficient to produce rinderpest. The goat virus becomes attenuated outside of the animal body. However, in one instance it remained virulent for eight days.

2. The virulency of rinderpest virus is apparently diminished by a single passage through goats.

This statement is based upon the following:

1. The character of the reaction and the percentage of recoveries in the test animals.

2. The small quantity of serum necessary to protect against 10 c.c. of goat virus. 150 to 200 c.c. of serum was sufficient to protect carabaos against goat virus and from 350 to 500 c.c. of serum is required to protect against cattle virus.

These experiments on rinderpest serum and virus are not only interesting but are also of considerable importance as the results appear to indicate that a less expensive method of immunication against rinderpest may be perfected. These experiments are of considerable scientific interest because of the use of an animal of high resistance to diminish the virulency of a virus in the preparation of a biologic. This is the same principle that is applied in the production of small pox vaccine.

* Excerpted by A. T. Kinsley from an article in the *Philippine Agricultural Review.*

---

## WILD BERGAMOT (HORSE MINT) NOT VIOLENTLY POISONOUS

Dr. F. B. Young, of Waukee, Iowa, writes as follows:

"Under separate cover I am sending a weed called locally 'fennel'.

"Yesterday a farmer turned ten sows into a field of oat stubble, in which this weed grows in profusion. Three of the sows died a few hours later, showing symptoms of collapse.

"I removed the stomachs of each hog and found large quantities of this weed, and the content had the pungent odor of this plant. These hogs had been on rape pasture and seemed very greedy for this weed, which is not ordinarily eaten.

"The gastric mucosa of one hog was very much irritated, of the other two only slightly reddened.

"Please classify this weed and tell me

if losses such as this are common."

This plant is wild bergamot or bee palm, *Monarda punctata,* also called horse mint. It is a well known mint with square stem, a mint flower and a strong pungent odor. It is the source of thymol, a phenol used as an antiseptic and parasiticide. No doubt in large quantities it is poisonous. I never have seen stock eat this to any extent. I do not think it was the cause of the trouble. If dog fennel (this has conspicuous white ray flowers; the plant has a strong odor) occurs in this pasture, as it probably does, it is likely repsonsible for the poisoning. The symptoms are: blistering of the skin, and its action as an emetic in large doses. It is quite acrid and contains a glucoside.

L. H. Pammel.

## "ANAPLASMOSIS" IN CATTLE

We have in Oklahoma, more or less widely distributed, at least affecting ten or twelve counties, a disease in cattle with which I am sure we are not all familiar. I am calling it to your attention because of its economic importance. Several hundred head of cattle have died in our state in the past ninety days as a result of this disease.

The history, symptoms and postmortem findings are set out by Dr. C. C. Hickel, Nowata, whom I believe has had more experience in treating it than any other. Others have had considerable experience, namely E. W. Meads of Claremore and J. C. Kimbrough of Miami; still others have observed this disease to some extent in their respective communities.

History: The disease simulates anaplasmosis. It occurs in all cattle, more especially in those six months old or older, however, it does occur in younger animals. It occurs in all pastures regardless of watering conditions. It has been found most prevalent during August, September and October, yet it has been observed even in the winter months.

Symptoms: Gradual to sudden loss of appetite, rapid emaciation; in milk cows, a diminution in milk secretion over night; this being the first thing to attract the owner's attention; persistent jugular pulse; rapid tumultuous heart beat ranging from 80 to 140 per minute; temperature at the outset is usually elevated from one to three degrees, later normal and subnormal before death. In most cases the temperature has fallen to normal or subnormal when the veterinarian is called. The bowels may seem normal at first, later there is diarrhea and this is to be followed by constipation with mucous coated or blood stained feces. Respiration may be somewhat accelerated, often breathing with a grunt on expiration. All visible membranes are anemic and icteric in appearance; the skin is decidedly icteric. In most cases there is quivering of the muscles of the shoulder and flank regions; there is frequent urination, usually normal or slightly clouded and occasionally hemaglobinuria; in some cases there is a tendency to fight even up to a few minutes before death.

Postmortem Finding: There are some ante-mortem clots; petechial to echymotic hemorrhages are often extensive; bile pigmentation is usually in evidence throughout the entire cadaver; the bile has a granular appearance; heart muscle showing degeneration; pericardial fluid sanguinous; serous infiltration in body cavities are common; digestive tract shows considerable bile present and the last few feet of the intestine contains hard, mucous-coated and blood-stained feces.

Treatment: The treatment which has proved most efficacious is anilin dies intravenously; two ounces each of aromatic spirits of ammonia and oil of turpentine in a quart of mineral oil; following where practical with iron and bitter tonics.

The above history, symptoms and postmortem findings are fairly constant and of course, the treatment is mainly symptomatic.

This disease is known to exist in Southern Kansas and Florida.

Oklahoma City, Okla. C. C. Hisel.

# Hemorrhagic Septicemia *

**State Reports, State Control and State Data**

**By H. A. WILSON, State Veterinarian, Jefferson City, Mo.**

THIS is an impossible subject to discuss, since in the first place, we do not consider hemorrhagic septicemia a reportable disease. In the second place, we have in this state no statutes or regulations pertaining to its control. In the third place, being as we have neither state reports nor state control measures, we would therefore naturally have no data at our disposal. Nevertheless, I shall attempt to give you the benefit of such information as I have accumulated upon the subject by conversing with veterinarians as well as cattle men who have suffered heavy losses from this disease.

I stated in the opening of this paper that hemorrhagic septicemia was not a reportable disease, and permit me at this time to offer the suggestion that, according to my way of thinking, most states have too many reportable diseases to occupy the time and attention of the practicing veterinarians, which class of men must necessarily be drafted in the capacity of deputy state veterinarians.

I look upon a case of hemorrhagic septicemia in livestock and its suppression in the same light that a board of health should look upon a case of malaria and its treatment by a local physician. It is purely a local condition, and no one knows as to whether or not the disease is really an infectious disease, let alone being placed in the class of a contagious disease. This statement may appear to be not only radical but smacking of ignorance. Nevertheless, I make it, only after much reading, much reflection and considerable experience with what we veterinarians are in the habit of diagnosing hemorrhagic septicemia, and if any of the members present tend to dispute such a statement I will kindly ask them premises where different ages of cattle to explain to the members of the association why you may see a virulent outbreak of hemorrhagic septicemia on are kept and only one kind of cattle will be affected. In other words, why will it sometimes affect only adult cows and at other times affect only little calves; then again it will affect neither, but take its toll from the yearlings and other stock cattle running upon the premises? If it really be infectious in nature, why would it not under those conditions affect all ages, as hog cholera would affect all ages of susceptible hogs?

Assuming that my contentions are well founded, and personally I believe that they are, then why should hemorrhagic septicemia be a disease reportable to the state authorities? Personally I am unable to see the necessity of such a procedure.

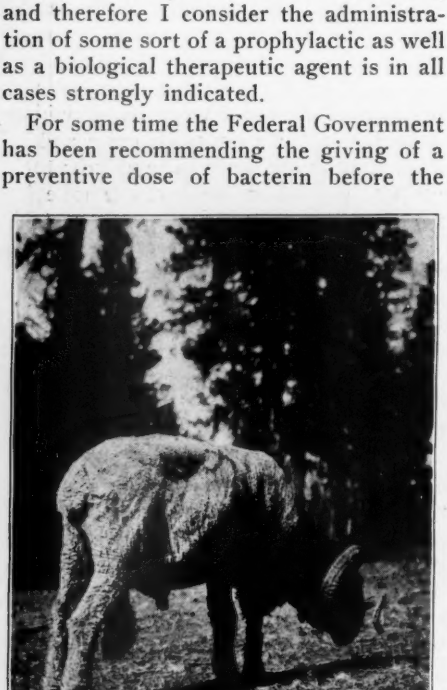
In my private practice I never observed it to be more prevalent in cattle which had come through the public stock yards than it was among the native cattle in the community. Furthermore, I never personally observed it in the acute form in stock yards cattle—that is in cattle which have recently come from the public yards, and it did not make its appearance in the acute form, accompanied by sudden deaths, until the stock yards cattle had been upon the premises of the owner a sufficient length of time to become thoroughly acclimated. The form which I personally observed in practice among stock yards cattle more closely resembled some form of an influenza than it did true hemorrhagic septicemia.

I cannot but be of the opinion that the condition we see in cattle coming through the public stock yards is a combination of infections rather than any specific infection such as hemorrhagic septicemia. I am not denying the presence of hem-

* Read at a meeting of the Kansas City Veterinary Medical Association, Kansas City, Oct. 11, 1927.

orrhagic septicemia in this kind of cattle, but I do doubt it being a plain, uncomplicated and clean-cut case of the disease. However, I believe that the severe losses are due to the presence of the septicemia, which can better do its work when attacking an animal whose resistance has been lowered by another form of illness, and therefore I consider the administration of some sort of a prophylactic as well as a biological therapeutic agent is in all cases strongly indicated.

For some time the Federal Government has been recommending the giving of a preventive dose of bacterin before the



**Chronic Hemorrhagic Septicemia**

cattle leave the yards. Without casting any reflections upon the activities of the Department, I will say that the reports which I have received upon this procedure are anything but encouraging. In the first place, from available information, the bacterin is not given by a trained and qualified veterinarian but is intrusted in know the technic of giving a hypodermic the hands of laymen squirters who do not injection, who know nothing whatever about the pathology of hemorrhagic septicemia and are totally ignorant of the theory of immunization established by the injection of bacterin. And the irony of it all is that these laymen vaccinators are not even supervised by a veterinary inspector. It suffices to say that such vaccination is not and cannot be a success, and not until such time as the Government sees fit to entrust this operation only to the hands of a qualified veterinary inspector can it ever be expected to accomplish any good whatsoever.

Judging from past experience, association with other veterinarians, and conversations which I have with cattle men, it appears to me that the proper way to handle hemorrhagic septicemia in stock yards cattle would be the giving of a dose of bacterin by a competent man before the cattle leave the yards, with instructions to the purchaser to have his veterinarian administer another dose in about five or six days after the cattle arrive at their destination. I believe that if all cattle buyers would pursue such a course they would reduce their losses seventy-five per cent or more.

Just a week ago I was in my home town for a few minutes. One of my old friends, who is quite an extensive cattle dealer, called me aside and told me about a drove of cattle which he had that were purchased at some point in Arkansas and had not come in contact with any public yards. They had what he called "stock yards fever." Although he had not lost any of them, they were doing no good. Their appetites were poor, and they were losing flesh rather than gaining flesh. He informed me that his local veterinarian had advised him to have the cattle treated with bacterin, and he wanted to know what I thought about it. I informed him that, according to my way of thinking, the veterinarian's advice was good, that, even though he did not lose a steer, his losses from shrinkage and the setback that the cattle would receive from the disease would cost him as much, if not more, than a ten per cent mortality, and that

he should reckon with and take into consideration that type of loss which was almost impossible to estimate in dollars and cents. This man was really undecided as to what course to pursue, but after a lengthy argument he informed me that he would have the veterinarian treat the cattle the following morning.

So it is not the death rate that is the only alarming feature of hemorrhagic septicemia. It is the loss from shrinkage and from the set-back that the drove receives which costs the cattle feeders of this nation millions of dollars annually from the disease which is commonly spoken of among the laymen as stockyards fever and designated as hemorrhagic septicemia by the veterinary profession, and permit me to suggest that it is not necessarily a disease of stock yards cattle only, as practically all cattle which are moved by rail from one point to another in some mysterious way contract this trouble.

Veterinary authorities inform us that there is no disease in all veterinary medicine which is analogous to simple coryza, or, in plain language "colds" found in the human race. Perhaps they are right, but, without attempting to put my opinion against the brains of the profession, I sometimes think they are wrong, as I see no reason why that animals would not, could not and do not have an ordinary cold the same as we contract from exposure.

Professor Jordan of the University of Chicago makes the statement that little is definitely known about the bacteria causing the common colds, and that undoubtedly the term "cold" is used for a variety of infections etiologically distinct, and that the pneumo-cocci and streptococci, as well as the so-called influenza bacillus is probably responsible in most cases for the condition diagnosed and described by medical men as colds. If that be true, then we should not be considered dumb if we assume that at least some of those bacteria are capable of invading the mucuos membranes of domestic animals and bringing about a similar condition, thus rendering the animal an easy prey to the Bacillus bovi-septicus, and therefrom establishing a virulent case of hemorrhagic septicemic. As to whether or not the animal picks up the B. bovi-epticus in the stock yards or in transit is more than I am able to say, but I do believe that there is not a farm in the fertile belt of Missouri but what harbors this particular strain of bacteria, thus accounting for the numerous and extensive outbreaks of hemorrhagic septicemia. What I have said applies to hogs as well as to cattle, and I again repeat that, owing to the nature of the disease, it is a problem which must of necessity be curbed and solved by the local veterinarian, and I do not think that the state has any moral right to intercede, except upon request of the local veterinarian — then the state should offer him all of the means at its disposal to assist the practitioner in controlling the disease.

H. A. Wilson

# Peculiar Postmortem Findings in Swine

I was out to see a bunch of pigs yesterday that I had to admit I did not know anything about. Ten head have died in the past two weeks. They have not been fed anything but are running in the corn field and a field with peas and rye. One died yesterday morning and I was there in the afternoon.

I autopsied it and found the kidneys light colored and I could tear them all to pieces with my fingers without using any force. The small intestines were empty, large intestines contained quite a lot of real hard lumps of feces that were coated with thick mucous and thousands of real small worms about one-fourth to one-half inch long, white and the diameter of a fine hair.

The liver was the lightest colored liver I have ever seen. It was a real light greyish yellow and I could hardly lift it without my fingers going through it. What puzzles me is, how could the liver be so abnormal and still have the fat and other tissues apparently normal in color. The lungs and heart were not bad except for some red spots on the lungs.

One pig was sick at the time of my visit and we could hardly get it up, but when it did get up, it had a typical hog cholera gait. Temperature was 104 deg. F. and the respiration fast. It passed some hard lumps of feces that were coated so badly they were nearly white. I posted it and it showed practicallly the same lesions as the other one, except there were a few red blotches on the kidneys.

These pigs weighed about 150 pounds and they are the heaviest that have died. The hogs in this drove weigh from 10 pounds to 400 pounds and there are no more sick. I advised the owner to sell those that were ready for market.

This has been an exceptionally good year here. The farmers raised good crops of everything and my business has been good in proportion. I don't like to see something like this get started; not knowing what it is, I am concerned about how serious it may turn out to be.—S., Iowa.

**Reply:** It is presumed that you investigated the fields of corn, peas and rye in which these swine were foraging and found nothing in the way of poisonous plants or damaged feed that would account for the diseased condition observed in the swine.

The lesions you found in the kidneys and liver may have been the result of high temperature prior to death of the animal. The condition in the liver may have been due to the action of some toxic substance in the feed.

It is difficult to identify the parasites that you found in the intestines from the meagre description given, but it seems a fair guess that those found in the large intestine were whip worms (Trichuris suis); that the ones on 0.25 inches long were the posterior portions of the parasites, the anterior portion having been torn off. On the other hand, they may have been the nodular worm (Esophagostoma dentatum) though this parasite can hardly be said to be threadlike.

Should you have an opportunity of another autopsy, it would be advisable to collect some of the parasites and submit them to some authority for classification.

If these swine have not been immunized against cholera, it would appear advisable to vaccinate them at an early date, because the initial symptoms of cholera are sometimes unusual and the conditions you have observed may be the beginning of a cholera outbreak. The hemorrhages in the lung may be due to infection with the bipolar organisms so it will be advisable to be on the lookout for hemorrhagic septicemia.

In this connection it should be emphasized that in making inquiries about swine, the information should always be given as to whether or not the animals have been vaccinated.—A. T. K.

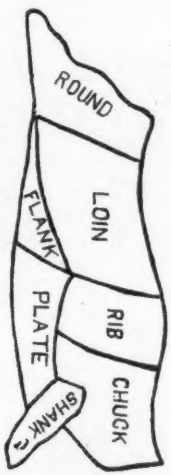
---

Cotton seed meal poisoning occurs in pigs when no other protein feed is provided. Evidence of poisoning may occur within two or three months, or it may not occur for five to six months.

DEC 23 '27

# Lessons from Post Mortem Work*

POST mortem inspection is beyond doubt the principal procedure in connection with meat inspection as conducted under Federal, State, or Municipal supervision. A thorough inspection of the viscera and carcass is the most satisfactory method of determining whether a carcass is fit for human food or whether it is capable of spreading disease. Such inspections show us whether our diagnosis is correct or otherwise; thereby enabling the practitioner




to adjust his advice and treatment to the conditions which are actually present.

The tuberculosis eradication campaign which was begun about ten years ago has been the means of starting considerable research work and more careful and thorough post mortem inspections. In the early period of this work we were at times annoyed by the number of "no lesion" reactors; a condition which still prevails to some extent, but we now have a better understanding of the situation.

It used to be customary for the "field" inspector to charge the post mortem inspector with negligence when reactors showed no lesions and the post mortem man had a like opinion of the other party. Both parties believed that they were doing their best, but as time went on it became apparent that there was room for improvement all along the line. The inspector making the test has in many cases been able to improve his technic and operate under more sanitary conditions and time and experience have taught him just where to draw the line.

Men sometimes become expert in certain lines and may be practically useless in other lines of equally important work. I recall two such men whom some people regarded as being slightly unbalanced, but I am told that their judgment as to what constitutes a "reactor" bordered on the uncanny.

**Locating Occult Lesions of Tuberculosis**

Likewise our post-mortem men have learned to look for slight lesions in places where they do not ordinarily look for evidences of disease while making the ordinary inspections. We have found that there are a large number of cases where the lesions are apparently confined to the skin, especially on the legs, with occasional lesions on other parts, especially about the neck, shoulders, or teats.

These skin lesions are often quite small, and very careful handling is required in order that they may be detected. Some may be found quite readily by making a careful inspection before the animal is skinned, when careful observations should be made of all enlargements; and after the hide is removed it should be spread over a rack or on the floor with the flesh side upward, and the surface should be carefully palpated to detect any enlargements. Small tumors will sometimes be felt where the eye would not readily detect them. These small tumors should be carefully incised and it will often be found that they are tubercular. Special attention should be given to the skin of the legs and neck, since these are the parts which are most likely to be infected through wounds or scratches, and the infection en-

*Address delivered by J. S. Grove at the Summer School for Veterinarians, College Station Texas June 15, 1927.

tering such places has a tendency to become localized. If inspections are made in the field it will be found best to have the legs and feet carefully skinned when no lesions are found in the viscera.

Where no lesions can be demonstrated, it has been found that in a considerable number of cases the tubercle bacillus may be found in the lymph glands, especially if there is any congestion of the glands. We have frequently found glands which were studded with small red spots when there were no other visible lesions in the carcass. These glands usually contain the tubercle bacillus, according to reports received from our laboratories.

avian type do not tend to become generalized, being usually confined to a small number of glands which have a tendency to become calcified and seldom necessitate the condemnation of the entire carcass.

The packers at some of the large markets pay a premium of 10 cents per hundred pounds for hogs which come from tuberculosis-free areas, as demonstrated by the tuberculin testing of the cattle, but it has been found that tuberculosis of the avian type persists in some such areas, and the packers threaten to withdraw the premium on hogs from some districts. Their actual losses from the avian type are small, but the retention and trimming of such carcasses are

**Dressing and inspecting carcasses of hogs and putting on marks of inspection**

### Loss from Avian Tuberculosis

The avian type of tuberculosis is causing considerable annoyance in some sections. since it has been found that ridding a section of the country from bovine tuberculosis does not eradicate the disease from swine to the extent that we had reason to expect.

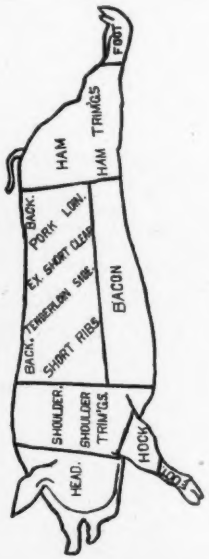
It has been found that the lesions of the a source of considerable annoyance and some expense.

### Locating Disease by P. M. Inspection

The post-mortem inspector should be on the alert to locate the origin of all stock which is affected with contagious disease. This is readily done when stock is killed in

lots as it is shipped from country points, but where various lots are thrown together for slaughter, tracing the origin becomes more difficult, but it is not always impossible for weights, brands, breed, type and colors will all assist the careful investigator.

We recently found about 14 cases of tuberculosis which were scattered through three different lots of cattle; some of these were very bad cases, and it was apparent that the source of the trouble should be




located. Many of the cattle in these lots were weighed in lots of one to five, and the task of finding the original owner at first looked hopeless, but an examination of every scale ticket showed that one shipper had cattle in each lot, and each lot had tubercular animals, and they were all of one breed. We assumed from the facts at hand that John Doe brought the cattle to market, and a letter to the shipper brought information to the effect that the cattle were probably from a dairy which kept 160 cows. These cattle have now been tested and 75 reactors slaughtered, many of them showing very extensive lesions.

A purebred shorthorn cow was slaughtered recently with history to the effect that although her calf reacted and its carcass was condemned the cow itself showed no reaction. The cow finally became unthrifty and was sent in for slaughter. The postmortem showed a generalized case of tuberculosis of the worst kind, apparently proving the old contention that some of the worst cases may not react.

Several years ago we noticed that repeated shipments of steers from a large outfit in southern Oklahoma were affected with tuberculosis, and the condition was reported to the Federal and state authorities. The cattle were tested, with the result that 170 reactors were marked for slaughter, many of which proved to be very bad cases. These cattle had never been stabled, but they were the offspring of a show herd which had been turned out on the ranch 20 years before.

### Cysticercus Bovis a Public Health Menace

While the situation as regards tuberculosis requires constant and painstaking attention, we must not overlook another condition which is prevalent in this state. I suspect that the sum total of human misery and inefficiency as a result of this condition is greater than the suffering and losses caused by bovine tuberculosis. I refer to cysticercus bovis, which you know is the immature form of the Taenia saginata. Our postmortem reports show about 100 cases per week going through the Fort Worth establishments, and we have looked up the origin of many of these cattle and find that they come from every part of our state, although the trouble is more prevalent in the southern counties, which appears to indicate that the Mexican people are the principal carriers of the mature parasite. There must be many thousands of people in this state who are suffering from the ravages of tape worms, and they are constantly infecting the water and food supply of our cattle. I understand that these people use a considerable quantity of jerked beef or partly cooked beef which, of course, may carry the living larvae with the customary results.

Aside from the suffering and consequent inefficiency of a large part of our population as a result of this trouble, there is a

financial side which you may be sure certain parties are not passing unnoticed. While only a small number of carcasses are condemned outright on account of this trouble the large number of slightly affected carcasses are placed in the freezer until any live cysts which may have escaped detection are destroyed. The packers estimate that this treatment results in a loss of about $10 per head in the value of the beef, since frozen beef does not find a ready sale. This means a loss of $50,000 per year to the Fort Worth packers alone. Many of our cattle are shipped to other markets, so that the ultimate loss will probably reach $100,000 annually. We suspect that this loss is taken into account when Texas cattle are bought on the market and is passed back to the

**"Measles" of hog heart—Cysticercus cellulosae, the cyst stage of the Taenia Solium.**

Texas cattleman regardless of conditions on his ranch.

### Monetary Loss from Cysticerci

About a year ago a cattleman at San Angelo brought a large number of fat yearling cattle to market, spreading his shipments over a period of about 60 days. About 25 per cent of his cattle were infected with cysticercus bovis, in fact one shipment of 87 head showed 44 with cysticerci, entailing a loss to a small packing concern of $901.07, or nearly $25.00 per head. About this time the buyers began to make low bids on this shipper's cattle, and he changed commission firms to conceal the identity of his cattle; however, the killing reports soon located him again and the bids went lower still. The last lot we have any record of was shipped to southern Oklahoma to conceal its identity and later returned to Fort Worth, but the cysts were there just the same.

We trust that some means may be found to overcome this menace to the health of our people and value of our cattle. The packers cannot be expected to foot the bills indefinitely, and the ranchmen whose cattle are free from infestation should not be penalized for the indifference or ignorance of others.

We believe that the cattle owners in the south half of Texas should insist upon their employees and tenants being treated by a competent physician with a view to the eradication of tapeworms. Too many cattlemen regard the matter as a joke, but once they realize that the situation is costing them something conditions may be improved.

Since this trouble is in a large measure a problem for the state health authorities we should use our influence to get some general and concerted action by the proper authorities. We believe that this problem is one that might well be undertaken by some large institute for medical research, for it is apparent that many thousands of people must be treated to secure the destruction of these parasites. We would also suggest that the state collect a fine from the producers of cattle which carry the cysts, and that the funds received from this source be used for the eradication of the parasites.

There appears to be no better way to get action than to impress upon the mind of the cattle producer the fact that he alone is responsible for the conditions under which he operates, and once he learns the source of his trouble and knows that the conditions

which surround him are the cause of a considerable financial loss, action will not be long delayed. A tax of about $2.00 per head on such cattle would yield a sufficient fund to keep several active men in the field with the means to control the source of the trouble.

### Taenia Echinococcus Prevalent

For many years we have observed that there is a large area centering in eastern Oklahoma and extending to neighboring states, where the live stock, especially swine, are affected with echinococi. This is largely a timbered country and the live stock runs at large in a district which supports a large number of dogs which are infested with the taenia echinococcus, and since nearly all the hog livers in that section are loaded with echinococci it is customary to feed them to the dogs and thus complete the cycle. This parasite is of unusual importance because it affects human beings as well as all our domestic animals, and it may be readily seen that where the dogs are carrying the parasites the ova may easily be picked up by the people of the community. We have heard of several such cases and believe that many more may be found in certain backward

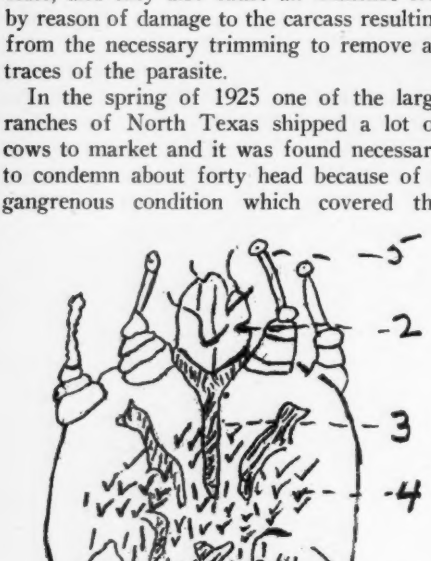
**Mange in the hog, showing different degrees of infestation. The carcass in the center is unaffected**

communities where efficient medical service is not available.

### Warbles Cause Great Loss to Cattle Owners

Another source of great loss to the cattleman is the larvae of the Hypoderma bovis, commonly spoken of as "warbles." These parasites probably damage 25 per cent of the cattle hides which are produced in the state, and they also cause an immense loss by reason of damage to the carcass resulting from the necessary trimming to remove all traces of the parasite.

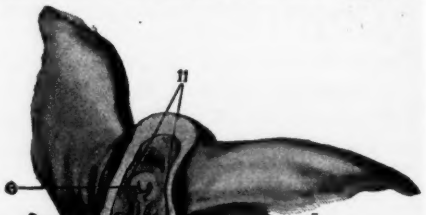
In the spring of 1925 one of the large ranches of North Texas shipped a lot of cows to market and it was found necessary to condemn about forty head because of a gangrenous condition which covered the




**Sarcoptic mange parasite—female**

backs and sides of the cattle and which plainly originated from infection which was introduced through the skin where the parasites were located. To eradicate these parasites will require an immense amount of work, but certain small districts in Europe have accomplished the task. Of course there are no range cattle there and it is a simple operation to remove the parasites from a milch cow.

We are apt to think that because our cattle are wild and scattered over large areas




**Head of Hog Showing Lymph Glands**

1 & 1 Parotid
2 Retropharyngeal or post pharyngeal
3 Superior cervical
8 Salivary glands (submaxillary)
9 Submaxillary lymph glands

that it would be impracticable to give them individual treatment, but if it can be shown that cattle which are free from "warbles" are worth much more money than infested cattle, ways will eventually be found to meet the situation.

The cattle buyer in the stockyards knows that the hides from such cattle are full of holes, and the carcass will be badly disfigured over the most valuable parts, and he makes his bids accordingly. The cattlemen should remember that the losses are passed back to him and are not likely to be borne by the city buyer. We have known buyers to bid $1.00 per hundred below the market for fat cattle which were badly infested. It would appear that a margin of ten or twelve dollars per head would go a long ways toward paying for the treatment of infested cattle.

Our people are sometimes inclined to think that because a job is a big one it should not be undertaken, but we believe that the eradication of these parasites is of sufficient importance to justify a large expenditure of time and money.

# Green Food Deficiency

By F. D. PATTERSON, JR., Auburn, Ala.,
Department of Veterinary Medicine, Alabama Polytechnic Institute

GREEN food is one of the most essential elements in any poultry ration. No ration is complete without it. Green food is one of the most important sources of vitamin and mineral supply. Green food contains these necessary elements in a readily available form, especially suited for utilization by poultry. It also furnishes them in a convenient and economical way. Green food furnishes bulk and fiber to the intestine. It is laxative, thus materially aids in eliminating toxins, as well as toning up the system, and otherwise assisting in keeping the fowl in a healthy disease resistant state.

Green food can well be called the balance wheel of poultry dietetics, for it covers up to a remarkable extent the detrimental effects that would be produced otherwise by errors in feeding poultry. It will materially aid in decreasing the danger incident to feeding large quantities of animal protein concentrates; a practice followed by most commercial egg farms and in egg laying contests. Many poultrymen even make the mistake of feeding their breeding birds on such rations. Proper feeding of green food is often the salvation of flocks so fed.

For best results the following cardinal points should be kept in mind when selecting green feed. It must be fresh, tender, succulent and green in color. Growing green food in direct sunlight is essential. I have very little respect for the pale yellow green food grown in its absence. Long dry spells unless some artificial means are used to supply proper moisture, are very detrimental to green food supply; materially affecting its quality as well as restricting the quantity. We frequently see flocks that are suffering from green food deficiency, although the quantity is sufficient, so we can readily see that the quality also must be looked after.

There are many substitutes used for fresh green food; but none can properly take the place of the fresh product. Some of these substitutes are far better than no green food elements at all, but we must remember that they are only substitutes to be used when nothing better is at hand. Some of these substitutes are worthless.

I have seen epsom salts recommended by one of our leading poultry publications as a green food substitute. This journal goes so far as to state that this drug will completely take the place of green food. Such a statement is absurd, for a laxative effect is about all we could expect from epsom salts, and that for healthy chickens would be far less valuable than the natural laxative effect produced by green food. Besides this, medicinal laxatives, when too frequently used are harmful, and the magnesium sulphate would have to be used often if substituted for green food.

### Pathological Effect

When green food is lacking in either quantity or quality the following diseased conditions are apt to occur:

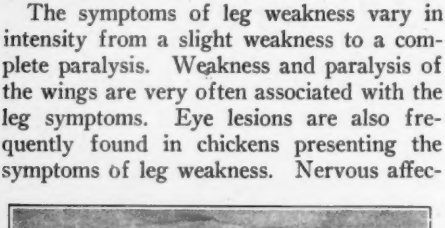
1. *Nutritional Roup.* This abnormal condition is characterized by a nasal and ocular discharge, varying in density from a watery to a thick mucous consistency. The conjunctiva becomes hyperemic and inflamed. The eyes usually are swollon. Keratitis may also be present and even ulceration of the cornea, especially is this true when secondary bacterial infection is a complicating factor. White patches in the mouth, throat and esophagus are frequently found. Incoordination of muscular movements are encountered in many cases. The characteristic odor of infectious roup is absent in nutritional roup. Many other characteristics of the infectious type are also absent.

The eye lesions sometimes occur alone; such conditions are known as nutritional ophthalmia.

2. *Leg Weakness — Paralysis — Range Paralysis.*—This condition is common in flocks that are fed rations deficient in proper green food. Leg weakness in poultry is

closely allied to—probably identical to rachitis in other animals.

The symptoms of leg weakness vary in intensity from a slight weakness to a complete paralysis. Weakness and paralysis of the wings are very often associated with the leg symptoms. Eye lesions are also frequently found in chickens presenting the symptoms of leg weakness. Nervous affec-



**Single Comb Rhode Island Red chicks eight-weeks old, fed Velvet-bean meal.**

tions of various kinds some times occur. As a rule diarrhea is present, indicating intestinal involvement.

Many so called outbreaks of range paralysis are traceable to green food deficiency.

3. *Enteritis.*—The symptoms presented in enteritis are those usually found in ordinary enteritis cases; diarrhea, loss of appetite, leg and wing paralysis, vertigo, impaired vision, nervous symptoms, etc. Whenever enteritis is present secondary bacterial infection is a complicating factor to the original nutritional deficiency. The intestine is the chicken's weakest point and becomes involved at the least provocation.

The intestinal condition must be carefully watched in any avian disease. Intestinal disorders are especially prone to occur if high animal protein feeding is practiced and as the relation of green food supply to animal protein feed is so vital, the feeder should regulate the diet in forced fed flocks by decreasing the animal protein when green food runs low.

4. *Growth, Production, Hatchability of Eggs and the Production of Strong Healthy Chicks.*—All of these are materially affected in direct proportion to the green food ration up to a sufficient amount. All the conditions above mentioned are often found in the same flock and sometimes most of them in the same individual. We must allow for variations due to complications which are often present in many different forms, for when green food is insufficient for any appreciable length of time, the flock members are much more susceptible to all disease-producing agents that come their way than are birds with sufficient green food in the ration.

### Treatment

Proper green food supply of course is the first consideration that is to be reckoned with in treating the flock, and if complications from other sources are absent it is often all that is necessary. Cod-liver oil will usually hasten recovery but is somewhat expensive.

If animal protein concentrates are being used to excess reduce and regulate the amount, for we must remember as previously stated that the intestine of the chicken is its weakest point, so, easily digested and non-irritating foods must be fed to prevent undue intestinal complications. Buttermilk is a harmless animal protein concentrate and a good one. It is also somewhat antibacterial, helping to change the bacterial flora of the intestine. Buttermilk is therefore excellent in flocks so affected and can be used in unlimited quantities. We must remember that bacterial invasion is especially prone to occur in flocks suffering from nutritional deficiency, and so is a factor that must be reckoned with in the treatment.

An initial dose of magnesium sulphate is frequently beneficial as it cleans out the intestine giving us a clean alimentary tract to deal with. It will also sweep out many harmful bacteria. It is as a rule advisable to give only one dose of this, giving it dissolved in drinking water.

After the epsom salts has acted, potassium permanganate in the drinking water may be of some value in keeping down bacterial infection. It, at least, gives the client something to do and will help purify the water supply. If secondary bacterial infection complicates the eye lesions, some non-irritating antiseptics may prove of benefit. Prominent among these are, iodex ointment, two per cent mercurochrome, fifteen per cent argyrol solution and yellow oxid of mercury ointment.

## POISONOUS ACTION OF BUCKEYE

A correspondent asks whether the buckeye is poisonous. There is plenty of evidence that several of these buckeyes are poisonous, namely the seed of the Ohio buckeye, *Aesculus glabra,* also of the red buckeye.

I have before me an interesting bulletin by Dr. C. A. Cary of the Alabama station which has not previously been reviewed in VETERINARY MEDICINE, on the poisoning by red buckeye.

The question that is raised is whether the leaves are toxic. Probably under some conditions many of the plants of this group have toxic leaves. Dr. Cary says:

"Of the 12 pigs fed some part of red buckeye plant, only one that was fed nuts at the close of 15-day test showed dullness, sluggishness and an unsteady gait.

"Of the seven mules and horses fed, or given some part of red buckeye plant, only three showed slight effect; one was depressed and weak, mucous membrane pale, put head against fence and then walked backward and forward. One was originally weak and became weaker and had to be helped up and the feces were soft. One exhibited twitching of the upper lip.

"Of six cattle fed or given some part of red buckeye plant, one exhibited slight symptoms and two exhibited distinct toxic effects.

"One test of nuts on fish in water poved to be toxic for the fish.

"Fresh leaves and flowers seem to be most toxic for cattle, and apparently the early leaves and flowers are most dangerous for cattle. At the time the flowers and leaves come out, the cattle are more inclined to eat them on account of lack of grass or pasture. Possibly the sugar in the flowers gives them palatability.

"It may be that nuts and roots, or leaves and flowers are toxic for pigs, but these tests do not show it conclusively."

The clinical symptoms given by Dr. Cary are as follows:

"Labored, deep respirations, and some time accelerated respiration and pulse; temperature may be slightly elevated; motor paralyses, in coordination of movements; twitching of voluntary muscles; at times animal is easily excited and at other times sluggish and sleepy; pupils dilated; at times excessive flow of saliva; usually has an appetite for ordinary feed."

L. H. Pammel.

## IS CHICORY POISONOUS?

Dr. Arthur L. Smith of Mechanicville, New York, writes as follows:

"I am sending you under separate cover a plant that I would like to have you identify and also tell me if it is considered poisonous to cattle.

"I don't think that cattle as a rule will eat it, but I have seen them take it this year."

The plant sent for identification is common chicory, *Cichorium Intybus,* a plant with blue flowers and a milky juice. Cattle ordinarily will not eat it because it has a slightly bitter taste which is true of many plants related to it. There are no very toxic principles in the plant so far as I know. The bitter glucoside, Chicorin, occurs in the root and plant. The root was formerly used as an adulterant of coffee.

L. H. Pammel.

## PEARLY EVERLASTING

Dr. J. G. Jaeckel of Embarass, Wisconsin, sends a specimen of supposed poisonous plant to VETERINARY MEDICINE, and the following letter:

"I sent you by today's mail a plant. Please identify and let me know if poisonous."

The specimen proved to be one of the everlastings, *Anaphalis margaritacea,* which produces an erect stem from 1 to 1½ feet high, floccose woolly; leaves white, woolly beneath, and green above; the flowers are borne in heads which are arranged in corymbose clusters. The bracts surrounding the flower are pearly white. The whole plant is fragrant. So far as I know the plant is not poisonous. The plant is somewhat astringent and an expectorant and sometimes used in medicine.

L. H. Pammel.

## GOLDEN GLOW IS INJURIOUS—MOLDY CLOVER AN IRRITANT

Dr. R. M. Allen of Marshalltown, Ia., writes as follows:

I am sending for your inspection some specimens of weeds and grasses that I took from a creek bottom pasture today.

One fine mare on this pasture came down with a paralysis and died three days later. Her mate came down with the same symptoms at noon today, but seems to be more depressed than the first one was at the time of going down.

These animals will eat and drink to some extent, seem to be unable to arise, gradually getting weaker.

They have been worked all summer and running in a weedy pasture with an undergrowth of moldy clover which has come up since the recent warm rains.

The first specimens sent to me contained only specimens of red clover with a powdery mildew. I requested Dr. Allen to look over the pasture again. He found a considerable quantity of the original form of our cultivated golden glow, *Rudbeckia laciviata.*

Dr. S. H. McNutt of the Iowa station and I recently saw large quantities of this golden glow in many of the bottom pastures of Marshall County. This plant often grows more than six feet tall with yellow heads consisting of yellow ray flowers with a yellow center. The leaves are divided. It is related to the black-eyed Susan. The weed covers the ground very thickly in many of the lowland pastures of Iowa. I have had a great many complaints about the poisonous properties of the plant from Kansas to Minnesota. It is also found in Illinois and Wisconsin. I know cattle will not eat it except under great stress of hunger. It has been reported as poisonous by a number of veterinarians and students of poisonous plants.

What about the mildew on clover? It is common all over Iowa from Bloomfield to Clayton County to Boone County and northward Minnesota and Wisconsin, and common in Illinois. This powdery mildew does not have a toxic substance but there are many cases on record where the consumption of hay or forage with this powdery or moldy substance has produced gastritis.

L. H. Pammel.

## OPERATION SUCCESSFUL IN EPITHELIOMA (?)

Referring to the article on page 460 of the November issue, "Epithelioma of the Eye Inoperable"; after a case has advanced as far as the one described in the article referred to, an operation is not likely to be a brilliant success.

A year ago, I had a case of this kind that I could not make up my mind as to the thing to do, and as our local veterinary association was going to meet in my town, I arranged with the owner to bring this horse in, thinking that someone would be glad to demonstrate his skill as an eye surgeon. There was not one of the twenty-five members present that would volunteer to operate, and my client went home much disappointed.

A short time thereafter the owner asked me what was the most serious thing could happen as a result of an operation. I told him I did not foresee anything more serious than the loss of the eye. He decided that old Dan would make a pretty good one-eyed horse, and if I wanted some experience, to go ahead and see what would happen.

I used a one per cent solution of cocain; cast the horse and operated. It was necessary to remove all of the membrana nictitans and quite a lot of the fatty cushion, but after the parts were cleaned up it was rather a satisfactory appearing operation and made a fine recovery, except the horse was cross-eyed in that eye, to which the owner did not object, as in about two weeks he came and had the other eye (which had become affected) operated on, and this was just as satisfactory and just as cross-eyed.

I had a chance to observe this horse for six or seven years, and everything was O. K. except for the cross eyes.

Mt. Carmel, Ill. H. A. Smothers.

STATE AGRICULTURAL DEC 23 '27

## PROBABLY A CRYPTOGAM POISONING DUE TO MOLD ON THE CORN

Dr. A. H. Legenhausen of Cedar Rapids writes as follows:

We are having some trouble in this vicinity with young pigs probably due to some form of poisoning, weeds or otherwise. I am enclosing a few samples and asking your advice.

The condition briefly is as follows:

Suckling pigs or pigs eight to ten weeks old are mostly affected. Female: Vulva swells up, inflammation in mucous membrane, gradually enlarges until entire vagina prolapses, exposing the os. Appetite good, no elevation of temperature. Male: Prepuce swells up, urine accumulates, considerable irritation.

Pigs are fed on corn, oats, tankage, buttermilk and pasture.

In one herd nearly all were affected (81 head) in the other herd about 30 to 35 per cent.

Any information you can give us on this subject will be appreciated.

I find the following weeds: Catnip, nettle-leaf vervain, Indian mallow and dragon head.

Catnip (*Nepeta cataria*), a well-known widely distributed weed occurring in waste places. This plant has a strong odor.

The second plant sent is smaller. This has opposite leaves, the leaves are rather thin and the flowers in spikes. This appears to be the nettle leaf verva in *Verbena urticaefolia.*

The third plant, of which there is only one specimen, is the butter print or Indian mallow, *Abutilon Theophrasti.* This is a well-known annual weed of the mallow family. It has small yellow flowers, a roundish, soft, velvety leaf.

There are no well defined cases of poisoning from catnip or the dragon head. However, cattle and horses usually avoid the plant. If large quantities are consumed, no doubt some injurious symptoms may follow. The Indian mallow or butter print has been suspected of being poisonous but there are few well defined cases on record.

Probably you find in the pasture mentioned a great deal of Mayweed, *Anthemis cotula,* which is known to be poisonous. This plant has its flowers in heads and has a strong, pungent odor.—L. H. Pammel.

---

## INTESTINAL STRANGULATION IN A HORSE

The two illustrations herewith were obtained at the postmortem examination of a thirteen-year-old gelding, which I was called to treat, at 3:00 A. M., on the morning of September 5th.

I shall not endeavor to paint the picture that led to this diagnosis, for many abler pens than mine have closely covered similar cases, and undoubtedly most of the readers of this article easily can conceive of what this case showed me by its action and gave me by rectal examination.

I would like to suggest to those that still have many years of practice ahead of them that they make a point of photographing their postmortem findings, for the picture

does not change, and a glance at it in time to come will help them and others.

This case was autopsied in the afternoon and these views were taken, which show so plainly the ruptured mesentary strangulating the intestine, and the line of demarcation after the incarcerated area was liberated. Good field pictures have been hard for me to get.

A bowel strangulated by the omentum, as shown in the cuts, is not rare, but if you can tell your client it is there before death, then show it to him and all his neighbors on post-

mortem examination, you are doing the most effective advertising permissible.

Chas. Thompson Fake.

Granville, N. Y.

## SAVING YOUNG LIVESTOCK

The prevention of stunted growth and death losses among young livestock makes stock raising a more profitable enterprise, says the United States Department of Agriculture, in Leaflet No. 1-L, "Ways to Save Young Livestock."

The system worked out for saving the lives of young pigs is simple in practice. The farrowing pen is thoroughly cleaned and scrubbed to remove all eggs of the roundworm, one of the chief causes of death among young pigs. The sow is then thoroughly cleaned up, a special effort being made to remove all eggs from the udder.

Within 10 days after farrowing the sow and pigs are removed to a field sown to forage crops and not pastured to swine since sown. The pigs are provided with a good supply of water and shade and kept in this field for at least four months, after which time they are reasonably safe from severe or injurious worm infestation.

Experiments with sheep have shown that rotation of pastures or of different kinds of stock on the same pasture is an aid in the control of stomach worms. Lambs are safer on fairly dry hillsides away from wethers and all older sheep except the mothers, wherever possible, and the mothers should be treated for worms.

Calves are not only subject to parasites but also to tuberculosis, bacterial diseases of the digestive tract, and other diseases. Eradication of disease among the mature stock and control of parasites, however, give an animal more vitality and greater resistance to ailments that may arise.

## RHEUMATISM AND AGALACTIA IN SWINE

Would you be so kind as to give me some information on a herd of hogs. Brood sows after farrowing will have milk for three or four days, then dry up; sometimes lactation will be reestablished but the majority of it is not. The sows are being fed chopped oats, middlings, alfalfa, etc.

Will you please suggest a good ration that would help them. In the same herd they have several sows with a purulent discharge from the vagina. The discharge has an extremely bad odor. These hogs all go down in flesh. They have probably about 50 affected with rheumatism. These hogs have access to green pasture, clover and rape, and a 40-acre lot to roam in. I assume it to be rheumatism as the pastern joints swell up and there is a shifting lameness.

The owner has tried several veterinarians, but the hogs are getting worse all the time. I am doing mostly dog work and sterility work in cattle, so find myself weak in this line.

Anything you might write to assist me will be greatly appreciated. M., Pa.

**Reply:** Agalactia is of rather common occurrence in sows particularly in those that are not fed a proper ration. The ration you have described is probably lacking in some very important elements. This statement is made because of the fact that agalactia occurs in brood sows and lameness in many of them. The trouble could hardly be a calcium de-

ficiency in hogs fed on clover, sweet clover or alfalfa. Your description suggests a phosphorus deficiency.

It is very probable the agalactia can be prevented by giving the sows a ration of soaked ground barley or some closely related food, beginning this ration two weeks before farrowing and continuing two or three weeks thereafter. In addition to the ground barley it would seem advisable to give the hogs on this particular farm some reliable mineral mixture in which there is phosphorus. Perhaps steamed, bone meal would be as good as any mineral product that could be given, or wheat bran may give the same result.

The other condition that you mention —the purulent discharge affecting a number of the sows, is no doubt the result of metritis. These sows should be treated before being rebred. The treatment will depend upon the cause of the metritis, some cases apparently are relieved by the use of stock bacterins, others require an autogenous bacterin. It would be of considerable value and hasten relief in these cases if they could be given douches of normal salt solution, using sufficient of the product to cleanse the uterus and seeing that all of the irrigation fluid is drained out.—A. T. K.

## HOGS POISONED BY APPLE SPRAY MATERIALS

I was called to treat hogs that had been fed a quantity of green apples. The hogs took convulsions and most of them died. I used mineral oil antiseptics. Please give proper treatment. How about an emetic apomorphin, etc.—T. J. C., Wisconsin.

**Reply:** I am rather inclined to believe that it was not the apples that caused the convulsions but rather arsenic or some other preparation that had been used as a spray.

No doubt an emetic would have been of some value in eliminating the offending agent. The mineral oil or antiseptics and particularly the oil was no doubt indicated.—A. T. K.

## ENZOOTIC TETANUS DUE TO HOG RINGING

An interesting outbreak of tetanus in swine has been reported by Dr. L. W. Fitzgerald of Keota, Iowa.

According to the report, a farmer having 145 head of hogs in the feed lot, following cattle, decided that in order to maintain the premises without having the earth turned upside down it would be necessary to ring the hogs, as they were routing very extensively.

In the ringing operation only 143 of the 145 hogs were caught; consequently two were left without rings. Within two weeks twenty-eight of the 143 hogs died of tetanus and possibly others were affected. The two hogs that had not been caught were perfectly normal.

This is a very interesting case and illustrates the necessity of keeping the hogs in clean, sanitary quarters even after a simple operation such as ringing. A. T. K.

## COMMENTS ON ENTERITIS OF SWINE

Having read the excellent article by Dr. A. T. Kinsley in which he calls attention to the seriousness of intestinal diseases in pigs which are commonly grouped under the title of enteritis or necrotic enteritis, I am prompted to say that I am convinced that necrotic enteritis is second only to hog cholera as an enemy to the swine industry.

Hog cholera is a preventable disease and can be controlled by timely and universal administration of serum and virus. The proper time to do this is a matter upon which veterinarians disagree, some advocating baby-pig vaccination, while others prefer to treat only weaned pigs. The method that works is the one to adopt, keeping in mind the principal objective which is to establish a lasting immunity in the most economical manner.

From the time of birth until an age of four or five months, the pig is constantly beset by the various intestinal ailments and they exact a toll far greater than is generally accorded them. Necrotic en-

teritis in the chronic form is the final stage.

It is unnecessary to elaborate on the etiology, symptoms and treatment of this disease, but there is no doubt that clean quarters will do much toward its prevention. Treatment is almost always unsatisfactory and can be applied to the individual only rarely. In case the disease is recognized in an early stage, it is possible to effect a recovery in a fair percent of cases by a starvation diet, and administration of intestinal antiseptics. However, great care must be exercised in getting recovered cases back on to feed or a recurrence of the disease will result. Providing a hog owner will take this trouble some progress can be made if the diarrhea has only recently begun.

What we really should seek is a plan for prevention which consists simply in keeping the susceptible pig in a place where the infection does not exist. On farms where only a few hogs are raised this may be partially accomplished by having each litter farrowed and grown on a clean lot of ground. On large ranches where this plan would not be practical, lots should be concreted or paved with some washable material which can be thoroughly cleaned. The nearer the hog lot approaches complete sanitation the more headway will be made in combating enteritis as well as other diseases of pigs.

I fully realize that sanitation is an "oft used and much abused" term and furthermore that as long as hogs can be successfully grown in sanitary surroundings the average owner will not invest much to improve conditions.

The pig has a snout for the purpose of rooting in dirt but that does not mean that dirt must be provided. In fact he is better off without it unless the dirt is uncontaminated by previous occupancy of other hogs. A litter of pigs will, if correctly fed, develop practically as well on concrete or board floors as on dirt, and by frequent cleaning and disinfection of the lot some of the losses usually associated with pigs can be reduced. This plan is not impractical; more and healthier pigs can be raised. Although the investment would be greater, a place should be provided which could be kept free from infectious disease.

I am glad to note that more interest is being taken in the diseases of pigs because in spite of farmer vaccination and other interference from the laity, veterinarians will sooner or later be called upon to control these diseases.

Fontana, Calif. P. C. Guyselman.

## ERECTING EAR FLAPS

Frequently we read of this or that authority preferring this or that suture material in amputation of the ear flap (cropping). It is my opinion that the suture has nothing at all to do with erecting the ear. I have seen some operators taking a great deal of time to suture the two layers of skin beyond the cartilage and I have seen assistants sew the "durned" flap any old way and the results were about the same. The trouble is in many cases that the dog is not a very spirited one, due often to faulty feeding and will never in some cases hold up the ears.

Another common error is amputating the ears too early. I have known of graduate veterinarians cutting ears of puppies six weeks old. I know of some of these cases where the ears were carried beautifully afterwards but it is best to wait until four or five months. Some years ago I went to the trouble to buy an apparatus to heat a gluey material to assist in erecting the ears, and I told the veterinarian who recommended it that I thought that any sort of mechanical arrangement to support the ears would not assist in the matter, but materially retard the dog's efforts to elevate the ears by atrophying the erectors of the ears.

A little stunt I have never heard of anyone using but which has given me confidence in its use is strychnin three times a day. I use this often in German shepherds, those that get to be five or six or more months old and don't have any

carriage of the ears. Some time one ear droops, but more often both are down. It doesn't require much strychnine. Mulford makes strychnin tablets for me as small as one two-hundredth of a grain. Another thing I have oberved in cutting ears is that you cannot show a man much about it, you have to furnish the puppies and let him figure it out.

New Orleans, La. W. J. Ratigan.

## TREATMENT FOR RUNNING FITS

I have a seven months old pup (hound) that has running fits when out on a hunt. He froths at the mouth and runs wild for a time. I have treated him for worms with carbon tetrachlorid, but it didn't help the fits. Otherwise the dog is healthy and a fine animal.

I say that it is a case of running fits, but it has the best of me. I will thank you for any information you can favor me with.—C. C., Idaho.

**Reply:** So called running fits is a type of reflex menengitis that is produced by many and varied conditions. It may be due to diet, to teething, to mixed bacterial infection, intestinal parasites, etc.

For the diet, it is well to see that the dog is receiving plenty of meat; at least 50 per cent of the ration; give a tablespoonful of cod liver oil every day in the evening meal if the dog's stomach is receptive to it. Give corn bread, bran muffins mixed in with the evening diet; one can also mix in Kellogg's "Pep" after the meat has cooled enough to feed; the "Pep" adds bulk and is also useful to relieve constipation. Sweet milk, sour milk and butter milk may also be fed the pup with advantage. Eggs are very good. There is so much to this diet question that I suggest the following, used with success in a similar case, where the fault was due to intestinal parasites and improper food.

### Diet for Pup

Breakfast: Boiled milk with Kellogg's Pep, oatmeal, cream of wheat, farina, or stale whole wheat bread. Use whole cow's milk and feed warm, a small amount of sugar may be added to make the pup relish it, a raw egg should be beaten up and given with the breakfast at least every other morning; beat the egg light and mix in with milk and cereal.

Lunch: Raw beef ground and mixed with a small amount of bran muffins, or Kellogg's Pep. Give a large soup bone to chew on, a bone that has a small amount of meat for the pup to worry off is best. Hard, stale whole wheat bread, lightly toasted is also good to feed at this time of day.

Dinner: Stew beef, liver or kidney, season with a small amount of salt and a good pinch of black pepper, boil well and do not have too much liquor with the meat after it is done. You can have soup bones chopped so that the marrow can be removed and this can be added to the stew, bones and marrow, later removing the bones. To this can be added corn meal, bran muffins or stale bread sufficient to keep the food from being sloppy. In cooking the beef, it is always well to add 25 per cent fat to the amount of beef used, as lean beef has a tendency to constipate. Once a week or every other week for the evening meal a can of tuna fish or salmon can be used instead of the other meat. The above schedule can be varied as you wish to, for the proper amount at each feeding this will have to be determined by the pup's appetite. However, should he refuse a food and not accept at once, remove and make him wait until the next feeding.

This pup should be through teething; if there are still some milk teeth present, remove them.

In some cases the condition bringing about running fits is produced by bacterial infection, in the majority of cases a colon bacillus infection and at times a staphylococcus and streptococcus combined. This producing an intestinal and gastric irritation and at other times a bladder and kidney irritation.

Thorough cleaning of the gastro-intestinal tract, followed by proper diet, aided with intestinal antiseptics is of value and urotropin is of value for the bladder ailment; both types are helped by a mixed infection serum made from hyperimmunized cows.

For intestinal parasites, prepare the patient by feeding a cereal diet for two days, fast twelve hours, and then give tetrachlorethylene, follow in one hour with dry epsom salts in capsule. Feed a fat-free and scanty diet the rest of the day and the following day. After a twelve hour fast, give kamala and oleoresin of malefern, followed in one hour with dry epsom salts in a capsule. Place on restricted fat-free diet for forty-eight hours

and then go back to regular diet.

In some cases, use santonin and calomel in with this treatment and again use arecolin hydrobromid instead of the malefern. However, never use any parasiticide without first being sure the dog has no fever, and also first preparing the patient over a two-day period, unless it is an extreme case.

Houston, Texas. J. G. Horning.

## FRIGHT DISEASE OR RUNNING FITS

The condition known as "Fright Disease," "Running Fits," etc., in dogs which has been the subject of much study and investigation in the veterinary profession does not bother me anymore, as I think I have solved the mystery if one may call it such. It is not a specific disease due to an infection as some investigators would like to make us believe. To my way of thinking, it is largely an alimentary condition.

The majority of my patients are of the hunting class of dogs. The owner of a good hunting dog keeps him tied so close during the time that he is not being hunted that he does not get a chance to run at large as he has been in the habit of doing (due to the fact that the automobile tourists are very fond of stealing hunting dogs) and is fed on a rich diet of food and in larger quantities than he should have. He can get none of the grasses that his appetite craves; or no decomposed meat that the dog got a few years ago.

One of the reasons we did not hear more of this condition a few years ago was because when an animal died it was left "up some hollow," there to decompose and the dogs for miles around would feast upon it. But today, the law forces the owner of all dead carcasses to either bury deeply or to burn them.

I am speaking of hunting dogs; true enough we see this condition in the house dog to some extent, but I believe it is all brought about by trying to change the natural food habits of the dog. Women and children who own a pet dog think it should have just what they eat, such as candy, cake, ice cream, fruits of all kinds, etc., and rubber balls to play with. These are sometimes swallowed.

I find the majority of these cases are caused by indigestion. The stomach is usually full of undigested food material or a foreign body of some kind. I had one case in which the animal vomited up three small screws, one nut from a bolt, two pennies, three ordinary carpet tacks, after being given an emetic.

There are a few cases that I find in conjunction with canine distemper, known as the nervous form but on postmortem examination I find an irritated condition of the stomach and intestines or find a loaded stomach and bowels, instead of an abscess of the brain or spinal cord as has been thought to be the cause of the nervous form of distemper. I believe that indigestion was the primary cause and the distemper simply a predisposing cause in these cases.

The first thing I do when these patients are brought to me is to give them one-tenth grain of apomorphin hypodermically and get the stomach emptied and relaxed. I then wait about one hour and give four ounces of oleum ricini, and repeat with a small dose say one ounce every day until free evacuation of the bowels is obtained. I allow no food of any kind for forty-eight hours. Give the stomach and bowels a complete rest. After forty-eight hours put them on a liquid diet such as milk or soup with an egg occasionally in the milk, for three or four weeks; then give solid food in very small quantities at a time.

After giving the first dose of castor oil I used canine tonic tablets put up by the DeVine Laboratories, two tablets three times a day for a period of one month or more. If there are any indications of distemper, which sometimes occurs due to the vitality being lowered from the indigestion, I use Guycamphodine tablets, put up by the above firm.

Huntington, W. Va. D. M. Phillips.

# Reviews and Abstracts

By D. M. CAMPBELL

## A Successful Operation for Fistulous Withers

Bordeaux[1] discusses a series of these operations and his findings on postmortem examinations on affected horses whose low value did not justify the expense of treatment. He regards superficial surgery as a failure, caustics possess many disadvantages, the most obvious of which is they destroy sound as well as diseased tissue. The Williams' operation (opening the swelling on top of the neck between the cords of the funicular portion of the ligamentum muchae, removing all visible necrotic tissue and making drainage incisions where necessary) is open to the objection that the drainage incisions heal long before the wound at the top of the neck closes.

The author found a more systematic plan than any of the foregoing necessary for the best results. He operated on the animal cast or on a table, and under general anesthesia. The area is clipped and a small horizontal opening made at the most prominent part of the swelling, penetrating to the pus cavity. The cavity is explored with the finger and the horizontal incision extended to the whole length of it. From the middle of the horizontal incision a vertical incision is made through the skin only, and carried as low as the bottom of the pus cavity. The triangular flaps of skin on either side of the vertical incision are then turned clear back and the whole of the uncovered muscle and other tissues dissected out, extending the dissection medially as far as the pus cavity. This is sufficient for the drainage of the ordinary case, but where pus sinuses penetrate behind the scapula additional drainage ordinarily posterior to the scapula must be provided.

The removal of this large amount of muscular tissue leaves no permanent disability and the resultant scars are small. Antiseptics are unnecessary in the treatment of the wound, but copious flushing to remove the *debris* is essential. Curretting is not required made twice a week to ascertain if any undrained pus pockets have been developed. but an exploration with the finger should be

**Caustics possess many disadvantages in the treatment of fistula. Where misused as in the case shown they constitute a sufficient cause for prosecution by humane associations. Dr. Bordeaux regards the employment of caustics as uncalled for in any case of fistula of the withers.**

[1] Some Notes on the Treatment of Fistulous Withers, by E. F. J. Bordeaux, B. V. Sc., Lecturer in Medicine, Melbourne University Veterinary School. The Australian Veterinary Journal, Vol. III, No. 3, September, 1927.

When surgical measures were carried out as in the foregoing, vaccines were unnecessary; when the surgery was deficient, the vaccines were ineffective.

---

### Successful Treatment for Epizootic Lymphangitis[1]

Results to date with mercuric iodid in the treatment of epizootic lymphangitis have been highly satisfactory. Of all the agents the Board has tested this chemical is by far the most effective. So far four horses have been employed in therapy experiments with complete cure in three cases. With a view to obtaining information as to the amount of mercuric iodid a horse would tolerate intravenously, one of the four animals was given a total of 3½ times the amount now considered to be a safe therapeutic dose. This animal died as a result of the overdose. This work will, of course, be continued as cases of epizootic lymphangitis become available. However, the results have been so marked that it is considered reasonably safe to predict that mercuric iodid will become established as a valuable agent in the treatment of epizootic lymphangitis.

The first case treated was a mule with well marked lesions on both sides of the chest. At the time the treatment was started the larger nodules on one side of the chest were opened and drained while those on the other side were left undisturbed. Following the injections of mercuric iodid the lesions on the side where the nodules were opened rapidly subsided. As would be expected, those on the other side of the chest were reduced more gradually.

Our present procedure is to make a small incision in any soft nodules present, evacuate the pus, and then give the animal daily intravenous injections of 0.50 gm. of mercuric iodid suspended in 60 cc of sterile distilled water over a period of 10 days. If necessary the course of treatment can be repeated after an interval of 10 days or two weeks.

[1] Extract from Report of Medical Department (U. S. Army) Research Board Investigations. Army Veterinary Bulletin, Vol. XX, No. 5, November 9, 1927.

### Epidural Block—Benesch Anesthesia

Fitzgerald,[2] in a discussion of regional anesthesia in the horse, ox, dog and cat, points out that the term Benesch anesthesia is not descriptive; that spinal and intraspinal anesthesia are incorrect, since the anesthetic is not injected into the sub-arachnoid space but outside of the dura-mater; that caudal anesthesia is not sufficiently inclusive; nor is the anesthesia a local one. He regards extradural or epidural anesthesia as the term of choice.

Epidural block offers many advantages over other forms of anesthesia, for all animals mentioned in the foregoing, over a wide range of operations. For army veterinarians and for practitioners without professional assistants to administer a general anesthetic; for operations on dogs or other animals, where it is desirable to avoid the disagreeable effects of general anesthesia; for anesthesia of long duration (up to three hours or longer), and for individuals in which general anesthesia is hazardous, epidural block is the anesthesia of choice. For all abdominal operations, all operations on the genitals, tail and hind quarters, in fact for all surgical operations (spaying, castration, firing, tenotomy, etc.) or painful manipulations (broken bones, dystocia, severe wounds, etc.) posterior to a vertical, transverse plane touching the lower part of the last rib, epidural block offers a wholly safe, remarkably efficient and easily administered anesthesia.

The injection while offering no difficulty to skilled hands, requires special knowledge of anatomy, and the following description of the anatomy of the parts is given:

The equine sacrum consists of five fused segments. The spines are directed backward and rapidly decrease in length posteriorly. The contour of the croup, then, is no criterion as to the direction of the sacral canal. The summits of the spines, except that of the first, are often bifid and not very distinct on palpation, the lack of distinctness being due, for the most part, to the extensive attachments of the dorsal sacro-iliac

[2] Report on Regional Anesthesia, by Captain Gerald W. Fitzgerald. Army Veterinary Bulletin, Vol. XX, No. 5, November 9, 1927.

ligament. The space between spines is small and occasionally completely closed by osseous tissue.

The first coccygeal vertebra is always closely and firmly attached and is sometimes ankylosed to the apex of the sacrum. The second coccygeal vertebra is much smaller than the first and the spines of the two are separated by a considerable interval. This, the first intercoccygeal space, is the first place back of the lumbo-sacral junction where a needle may be readily inserted into the vertebral canal.

The sacral canal rapidly diminishes in size from before backward. At the lumbo-sacral junction a noticeable enlargement of the canal exists. This accommodates the lumbar enlargement of the cord, allows for some movement without endangering nerve structures, and provides a rather large epidural space.

The terminal part of the spinal cord, conis medullaris, ends at the anterior part of the sacrum. In the embryo the arbitrary divisions of the cord—cervical, thoracic, lumbar, and sacral—corresponds to similar regions of the vertebral column. Through unequal growth this correspondence becomes unequal in the anterior regions and is lost in the lumber and sacral regions. The fifth and sixth lumbar spinal nerves run backwards, the sixth, the length of the last lumbar vertebra, to reach their intervertebral foramina. The sacral and coccygeal nerves transverse the sacral canal. Except at the lumbo-sacral junction and again in the anterior coccygeal region the nerve trunks, surrounded by fat, fill this part of the vertebral canal.

The spinal nerves, from the third lumbar posteriorly, supply all the structures back of a transverse plane touching the lower part of the last rib. The pelvic viscera and genitalia, other than that reached by branches of the spinal nerves is dependent upon the sympathetic system. The latter is connected to each spinal nerve by the ramus communicans.

A one per cent solution of procain or dulcine is used for the injection. Ten cc of this solution is sufficient for operations on the tail in the horse and ox, 1 cc for tail operations on large dogs and 0.5 cc for cats and smaller dogs. 20 cc is required for anesthesia of the genitals in small cows (Jerseys) and 30 cc for large cows. An increase of 50 per cent in these amounts is required for complete abdominal anesthesia. In horses, 30 cc to 40 cc will anesthetize the hind quarters and yet permit the animal to stand. 50 cc puts the animal down and gives complete anesthesia of the abdomen and all posterior parts. The addition of five minims of a 1 to 1000 solution of adrenalin chlorid to the injection prolongs the period of anesthesia.

Quoting from an investigation observed at the Kansas State Agricultural College, the author says:

"The anesthesia develops rapidly. In five minutes the base of the tail has lost its power of movement. The lower part of the tail is moved from side to side, the upper part is stationary. A noticeable kink, which moves toward the end of the tail, indicates the progressive loss of motility. In ten to fifteen minutes, the gait becomes unsteady, the tail stationary and the external genitalia relaxed and insensible. In twenty minutes anesthesia is complete. The duration of anesthesia is from one to two hours. When solutions stronger than one per cent are used sensation and motor reflex are slower in returning.

"A 16 gauge needle, two inches long, is a convenient size to use, only rarely is it completely inserted. We locate the site of injection in the horse by running the finger down the contour of the croup until we come to the first evident depression between spines. Counting the spines from the first sacral backwards enables one to recognize the first intercoccygeal space with certainty. The animal usually offers less resistance to the operation if a few cubic centimeters of anesthetic, enough to produce a distinct wheal, is injected subcutaneously. The needle is inserted near the center of the depression and given a slant of about forty-five degrees to the plane of support. It is essential that the needle be started and kept in the median plane of the body. Occasionally it is necessary to change the slant of the

needle due to striking the edge of the vertebra before entering the canal. Approximately two-thirds of the length is inserted. On injecting the fluid very little force, other than that necessary to operate the syringe, is needed. One has the sensation that the injection is being made into another fluid or into space."

For the small animals the advantages of epidural anesthesia are even more numerous than for the horse and cow but the technic of the injection differs.

Whereas the site of injection for epidural anesthesia in the horse is in the first intercoccygeal space, in the dog and cat, this injection site is between the last lumbar vertebra and the sacrum. It should be noted, however, that the termination of the spinal cord is anterior to the lumbo-sacral junction in the dog and cat.

Glass syringes of five or ten cubic centimeter capacity and needles from two to three inches long and a number twenty gauge are the preferred necessary equipment. Procain dissolved in a normal salt solution to the extent of two per cent is used. Surgical anesthesia starts from ten to fifteen minutes after the injection and lasts from one hour to an hour and a half. If it is desired to prolong or intensify the anesthesia, as little as a single drop of the adrenalin chlorid solution will suffice.

The amount of solution to be injected will vary from five cubic centimeters in a large fox terrier to twelve cubic centimeters in a fifty-pound dog and twenty cubic centimeters in a one-hundred-pound dog and three cubic centimeters for a mature cat, and for younger animals the amount of solution used will vary accordingly to the size of the animal.

The point to insert the needle may be located by palpating for the depression just anterior to the first sacral vertebra, or the depression may be located on a line drawn transversely across from the posterior borders of the wings of the ilium. It is best to allow the animal to remain in the standing position. The needle should be inserted exactly in the center of the depression and tilted slightly backward. The depth that the needle will have to be inserted will vary from one half inch in the small dogs to two inches in the larger ones. It is very easy to miss the canal, if the needle is not inserted exactly in the center of the depression. The injection of the solution should be made slowly.

After the injection, the dog should be held in dorsal recumbency and the posterior parts elevated for a few minutes, so that the anesthetic fluid will gravitate forward and anesthetize the sensory nerves supplying the abdominal muscles. Any of the abdominal operations can then be carried out with perfect anesthesia.

Such operations, as amputation of the tail, castration, and spaying have been carried out without any restraint of the patient or any evidence of pain. In the operation for caudectomy and others only on the tail, one cubic centimeter of a one per cent solution is sufficient on mature dogs, and in puppies one half of a cubic centimeter of a one per cent solution is sufficient. The anesthesia is complete in three minutes and instead of elevating the dog's hind quarters allow the animal to sit down, so that the solution will remain in the posterior part of the canal.

---

## Temporary Sterility Amongst Dairy Cattle

Webster[4] describes a condition of temporary sterility in dairy cows that he concludes is wholly different from the type of sterility in the United States related to infectious abortion in cattle. It is characterized by a cervicitis as the only constant lesion. The cervicitis appears to be of bacterial origin and the rapid spread of the disease and its wide occurrence suggest an infectious cause. On the other hand, no organism could be isolated from the affected cervices that could be incriminated nor could the disease be communicated with certainty by inoculation with the discharges.

The cervicitis does not affect the general health of the animals and tends to spontaneous recovery yet it is of great economic im-

[4] Temporary Sterility in Dairy Cattle, by W. Maurice Webster, B. Sc., M. R. C. V. S., Department of Agriculture, Masterton, N. Z. Australian Veterinary Journal. Vol. III, No. 3, September, 1927.

DEC 23 '27



portance since it delays breeding in a large percentage of the affected cows from three to six months. Various lines of treatment of affected animals were tried without marked success. Animals that conceived in spite of the cervicitis recovered promptly thereafter.

No affection of the prepuce of the bull could be identified as related to the cervicitis, which occurred in virgin heifers as frequently as in cows that had calved. In two herds using the same bull, the disease was noted in a large percentage of the cows in one herd and not at all in the other.

There are some indications that the cervicitis and sterility may be due to an iodin deficiency and still more evidence that a calcium or more probably potassium deficiency is responsible for it; but as yet it cannot be stated that it is a deficiency ailment. The ailment spontaneously disappears from a herd after a few seasons leaving its breeding efficiency in no wise impaired by the visitation.

---

### An Iron Deficiency Disease

Impaired condition, unthriftiness, infertility and fatal ailments as a result of insufficient vitamins, iodin, phosphorus or calcium in the ration have been established beyond question by clinical observation and by scientific research. Perhaps a lack of magnesium and of potassium in the rations also may be said to have been proved to be the cause of certain nutritional ailments.

Recent investigation in Tasmania has added two more prevalent diseases to the list of recognized nutritional ailments of domesticated animals,—"Bush Disease" of New Zealand and "Coasty Disease" of King Island, a small body of land 40 miles northwest of Tasmania. The element, the lack of which is responsible for the latter disease, is iron.

Dickinson[5] describes "Coasty disease" as a progressive anemia characterized by lachrymation, scouring, wasting, a dry harsh coat, etc. It has long been known to develop with certainty in cattle grazed for a period of about six months on definite areas along the coast of King Island and on certain pumice lands of New Zealand. The disease is not transmissible. It is cured by grazing the animals on "sound" areas. Coasty disease of King Island and bush disease of New Zealand are identical in all respects except that whereas about six months on "coasty pastures" unfailingly produce marked symptoms of the disease, a period of about twelve months on "bush disease pastures" is required to develop the disease.

The herdsmen have been able to use these pastures only by alternating their cattle on the deficient and on the "sound" pastures every three or four months. Handled in this way, the cattle do well for the "coasty" lands produce luxuriant grass. However, this is not always practical since many herdsmen have no "sound" pastures.

It was found in this investigation that coasty disease like bush disease, can be prevented readily and cured promptly by the addition of iron sulphate to the ration. The iron sulphate was dissolved and mixed with molasses to overcome the bitter taste and sprayed upon the hay, ground feed or grain fed the animals. In most of the affected region, the animals are ordinarily watered from water stored in elevated tanks and automatically released to watering troughs as required. The addition of iron sulphate to the drinking water is the most convenient method of administering the iron. The animals do not object to the taste in the weak dilution required.

A chemical examination of "coasty" and of "sound" soils demonstrated the iron content of the latter to be approximately seven times as great as in the former.

---

### Rinderpest Vaccine Investigations[6]

Tests of rinderpest vaccine left at high room temperature (85-92 deg. F.) indicate that the vaccine prepared by the Medical Department Research Board (U. S. Army) is much less sensitive to heat than the vaccine originally prepared by the Insular Bureau of Agriculture.

[5] King Island "Coasty" Disease, by C. G. Dickinson, B. V. Sc. Government Veterinary Officer, Ulverstone, Tasmania. The Australian Veterinary Journal, Vol. III, No. 3, September, 1927.

[6] Extract from Report of Medical Department (U. S. Army) Research Board Investigations. Army Veterinary Bulletin, Vol. XX, No. 5, November 9, 1927.

The rinderpest vaccine investigation is rapidly nearing completion and the entire report will shortly be prepared for publication. Major Kelser (V. C., U. S. A.) presented a paper on the subject at the Congress of the Far Eastern Association of Tropical Medicine at Calcutta, India, early in December.

### Secretion of Sex Glands

Weston,[7] in a discussion of various problems of reproduction, reminds his readers that the production of spermatozoa is not the only function of the testicle nor the production of ova the complete function of the ovary.

The cells of the testicles and ovaries differ fundamentally from the cells of other organs in that they retain embryo characteristics—their original powers to set going the phenomena of life.

The connective tissue of the sex glands which is of epithelial type secretes hormones on internal secretions that are responsible for the phenomena of sexual desire and determines various bodily characteristics.

If the testicles be removed from the male and a portion of the ovary grafted onto the peritoneum, the individual develops many of the somatic characteristics of the female—development of mammæ, secretion of milk, attraction for the male, etc. If the ovaries of the female be removed and ovarian tissue be grafted upon the peritoneum, the female characteristics are not altered—the periods of estrum are unaffected, somatic female characteristics persist.

Unlike the testicle, the interstitial hormone is not the only internal secretion of the ovary. Lutein which controls the development of the fetus is produced in the ovary. The stimulation of the mammæ and the decrease in the secretion of milk in the pregnant female is due to a harmone produced by the embryo and is independent of nervous control.

In addition to the testicle and ovary, the thymus and pituitary glands secrete hormones that affect sexual development. The latter assists in stimulating the changes which normally occur at puberty.

Ovarian and testicular grafts behave differently. The ovarian graft "takes" readily. In the muscles (as of the neck) it persists for several weeks and will stimulate the normal ovaries, producing one to three periods of estrum in some females in which menstruation has been absent. Ovarian grafts onto the peritoneum persist and function (in the production of hormones) for long periods. Testicular grafts do not "take" readily if at all, except upon the tunica vaginalis or upon the testicle and even in these locations they function but temporarily, at longest but for about one year. While the ovarian graft has a definite place in the treatment of sterility, the testicular graft is of doubtful value or perhaps of no value in the reproductive process.

### Tick Paralysis

Ross[8] concludes a discussion of this ailment with the following summary:

1. Tick paralysis occurs in man, the dog and other domesticated animals on the east coast of Australia, and so far as is known the disease in Australia is conveyed only by the mature female *Ixodes holocyclus*.

2. A single tick may cause fatal paralysis in man and the dog, the death rate in dogs being very high.

3. The onset of symptoms has never been observed to occur in less than five days from the time the tick or ticks have attached themselves to a dog, and depends on the rate of engorgements of the tick.

4. Symptoms begin with a loss of coordination commencing in the hind legs, the fore legs and neck becoming subsequently affected. Death in all cases appears to be due to respiratory paralysis.

5. Paralysis was never seen to occur when ticks were removed from dogs before the time symptoms usually appear while all ticks do not necessarily cause paralysis in susceptible animals, even when engorging fully.

6. It is impossible to transmit the disease

[7] Notes on Sex Organs and Some Problems of Reproduction, by E. A. Weston B. V. Sc., Subiaco, West Australia. The Australian Veterinary Journal, Vol. III, No. 2, June, 1927.

[8] An Experimental Study of Tick Paralysis in Australia, by I. Clunies Ross, B. V. Sc., Lecturer in Veterinary Parasitology, University of Sydney. The Australian Veterinary Journay Vol. III, No. 2, June, 1927.

from affected to healthy animals by the inoculation of blood, body tissues or fluids, or the body contents of ticks. No causal organism can be demonstrated.

7. It is considered that the causal factor is a toxin secreted by the salivary glands of the tick, which reach their maximum stage of activity in the two days before the female drops off the host.

8. An emulsion of the salivary gland proved toxic when injected into a dog.

9. There is some evidence that immunity to the disease may be acquired after recovery from previous attacks.

---

### Rabies in Germany

Kitt[9] tells us that before the war there was very little rabies in Germany but the disease has notably increased since 1914. From 1910 to 1914, there were 300 to 500 cases a year, in 1924 the number had risen to 2,191.

The number of persons bitten increased from 200 to 300 before the war, preventively vaccinated to 1400 in 1923 submitted to the Pasteur treatment.

This increase is attributed to the fact that many soldiers returning to their homes brought with them dogs from the battle fields, to relaxation of sanitary measures and to a general increase in the number of dogs. Rigorous precautions in the last two years are bringing a satisfactory diminution. Out of 21 departments of Wurtemberg, only three reported rabies since 1923. In Upper Bavaria, in 1924, the disease has almost completely disappeared. Germany's situation renders very easy the entrance of contaminated animals from her neighbors.

German law provides for the killing of all dogs in which the malady has been diagnosed. After some one has been bitten, the dog is shut up in an iron cage pending the diagnosis. Cats are subject to the same regulations. In contaminated districts, all stray dogs are shot unless they are wearing a collar bearing the name of the owner and his place of residence. In Munich where rabies has disappeared in the last two years, muzzles and the leash are not required and owners are duly grateful for the freedom allowed their animals. At night, dogs must be shut up in their yards or houses, the kennel surrounded by a protection sufficient to keep away other dogs. The press and veterinary conferences have contributed to the instruction of the public, films and projections showing symptoms of rabies in different animals being used to drive home the lesson of efficient protection.

Antirabic vaccination has been fought in Germany up to the present time owing to the fact that repeated inoculations do not give any certainty that the disease will not manifest itself some day, and to a feeling that the Pasteur method of vaccination and treatment does not always bring cure, especially when the bite is in the face or the vaccine is administered too late. Men have died a year and a half after inoculation. A recent work of Kraus, Gerlach and Schweinberg says that among persons vaccinated for rabies in different institutes there were 5,300 dead of the disease and these figures correspond to about 1 per cent. Among dogs, the percentage is certainly higher.

In Germany, there is opposition to vaccination of dogs on the score of doubtful innocuity of the vaccine. It would be obtained by Fermi's and, probably, by Puntoni's method. Fermi says that only repeated inoculations assured immunity.

The researches of Giese and Puntoni have demonstrated that there is a difference between the ordinary virus and the viruses of the different institutes, so that the fixed virus does not confer immunity against the common viruses. Dosage is also uncertain because the marrow of rabbits does not always contain the same amount of immunizing substance.

We are surprised that in France where are found the original Pasteur Institutes and where rabies is widespread, very little is heard of vaccination of dogs.

It appears difficult to make this vaccination practical, the expense having to be considered. Although the question of money does not enter in when the preservation of human life from terrible maladies is concerned, it might be asked whether the amount expended for thousands of rabbits

[9] Rabies in Germany, by Th. Kitt, Nuova Veterinaria, 1927: 15-7. Abstracted by M. C. Brown.

would not be better spent in the exercise of a strict sanitation. Police measures offer less inconvenience and less annoyance.

### Antirabic Vaccination of Dogs and Vaccinal Rabies

Finzi,[10] in reply to Professor Kitt's communication, mentioned in the foregoing, says:

By the Japanese method the preventive effect is assured less than ten to twelve days after the bit. When it takes place later it varies according to circumstances.

Accidents of paralysis after the Pasteur treatment, or, following anaphylaxis or from other causes, are due to special properties of certain strains of virus or to individual manipulations.

Accidents such as Professor Kitt describes are rare, if not absolutely exceptional, when one uses phenic vaccines.

It is Puntoni's formal opinion (1919) upon the phenic vaccines of Fermi. The harmlessness of glycero-phenic vaccines, employed preventively or curatively, is absolute. With a single injection in a massive dose, 15,000 dogs have been vaccinated in numerous towns of Italy (Turin, Pignerol, Alexandria, Asti, Mondovi, Modena) *without a single accident having been observed.*

### Resemblances of the B. Abortus and the Micrococcus Melitensis

Comparative studies made of these two agents by Burnet[11] reach these conclusions:

1. Morphologically, the difference between *B.abortus* and *M.melitensis* are so little marked that no observer can make any certain diagnosis.

2. Pathogenically, differences in results are recorded but they are not such as to establish anything beyond varieties of different origin of the same organism.

3. Reactions from crossed agglutination demonstrate that an anti-melitensis serum can agglutinate *B.abortus* and, inversely, that an anti-abortus serum agglutinates also the melitensis.

4. Intradermic reactions with abortin are positive for superficial infections of *M.melitensis* and, inversely, the reactions with melitin are positive for infections of *B.abortus* as for those with *M.melitensis.*

5. Man, attacked by Mediterranean fever, reacts to the abortin in the same way as to the melitin.

Consequently, the characters of form, of culture, the sero-reactions and the pathogenicity can not or do not allow us to differentiate the two agents.

There does exist, however, one difference from the pathogenic point of view. The monkey is much more sensitive to the action of *M.melitensis* than to that of *B.abortus.*

Clinically, it seems that no case of Mediterranean fever has been observed in localities where *B.abortus* causes veritable epizootics among animals.

### Undulant Fever

Undulant or Malta fever is a malady long known in Europe where its history is bound up with the Mediterranean sea and the island of Malta. The agent of the fever, described by Bruce in 1887, is still called by authors the Bruce bacillus.

Serious attention on the part of the British was attracted to it in 1904 by the prevalence of the disease at the English naval station of Valetta in Malta and the Admiralty, cooperating with the government of Malta, instituted a Royal Commission whose work from 1904 to 1907 forms the basis of nearly all subsequent inquiry. Thanks to active measures taken at that time the disease was checked and, until 1920, was relatively unimportant. About 1920, its growth and spread anew drew attention, this time from the Mediterranean countries from Greece to Spain, and including France and Italy. It had long been known in India, was said to have originated in Persia and has, propagated by one means or another, reached South Africa, the United States, even the Pacific islands. This widespread renewal came in for consideration at the XIIth Congress of Hygiene held in Paris in 1925 (See *Rev. D'Hygiène,* 1925). Reports made at the congress discussed with

[10] Antirabic Vaccination of Dogs and Vaccinal Rabies, by G. Finzi, Clinica Veterineria, 1927: 274-282. Abstracted by M. C. Brown.

[11] Resemblance of B. Abortus and Micrococcus Melitensis, by Etienne Burnet, C. R. Acad. des Sciences, 1922: 175, 790-793. Abstracted by M. C. Brown.

keen concern possible measures for control and prevention together with information regarding its geographical distribution, diagnosis, etc.

The pathogenic agent of the fever is best known as the *Micrococcus melitensis*. It is harbored especially by the goat, also by sheep, these animals being, it is said, particularly to blame for its insidious spread and introduction into new lands, the latter being readily traced to them.

It resembles the *Bacillus abortus* so closely, says Auche[12] that the cultures are identical and test tubes containing them can not be certainly identified if labels are misplaced or removed in the laboratory. Biologically, they are identical: the same alkalinity, same formation of ammonia, the same inactivity toward glucose, saccharose, maltose and mannitol. Serologically, the identity continues. Sero-diagnosis shows that an anti-melitensis serum agglutinates both the abortus and the melitensis, greater sometimes for one, sometimes for the other. Crossed immunity gives, in experiments, similar results. Most important is the pathogenicity of the two micro-organisms. It has been studied in different animals and in man. With the guinea pig, the results are the same as to localization, lesions, complications. They differ in abortive result. While the abortus frequently causes abortion, the melitensis never does. Knowing the pathogenicity of the melitensis for the monkey, a test was made with the abortus. The experiments of Fleischner and others on this animal showed that, contrary to preceding results, the melitensis is much more virulent for this animal than the abortus. As to the comparative pathogenicity of the two for man, that of the melitensis for man being well known, it was of interest to investigate the power of the abortus. Nicolle, Burnet and Conseil solved the question. Five subjects were inoculated with the abortus. All results were negative: no fever, no clinical symptoms, hemocultures sterile, no production of agglutinins. The conclusion was imposed: the *Bacillus abortus* is not pathogenic for man.

Miss Evans takes an opposite view. She studied the serum of 500 patients not Mediterranean finding 59 agglutinating serums: 43 in a dilution of 1 to 5; 11, 1 to 10; 2, 1 to 20; 2, 1 to 40 and 1, 1 to 320. This last from a patient having an ambulatory infection who had never drunk goat's milk and who did drink daily a litre of unboiled cow's milk. (Miss Evans is even more assured of the human infection in her article in the Journal of the American Medical Association of February 26, 1927, citing some twenty cases more or less authenticated in the U. S. and mentioning thirty-five in South Africa. She also refers to Italian opinion of undoubted human infection. Carpenter's investigations confirm the findings of Miss Evans. See VETERINARY MEDICINE for December, 1927; page 487.)

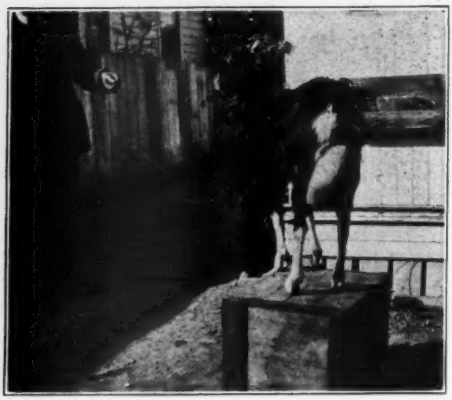
Recently, Burnet himself, after experiments in cross-immunity, recognized that the microbe isolated from the goat, Suzon, one of a flock infected with the ambulatory form, which had been the cause of human undulant fever, was incontestably of the melitensis-abortus species, the microbe isolated from one of the two contaminated by the milk of the flock presenting the same characteristics.

These observations, in contradiction to the experimental results obtained by Nicolle, Burnet and Conseil, demonstrate that if, in general, the abortus is harmless for man, it may, under certain circumstances, acquire pathogenic properties.

Let us add, in support of the non-pathogenicity of the abortus toward man, that up to this time no case of laboratory contamination of man by this agent, the abortus, has ever been published, while cases of melitensis infection in laboratories are only too frequent. Why the abortus has been able to become pathogenic, sometimes, toward man is still completely unknown. Might the fact be attributed to an increase in virulence in its passage through the goat, and, correspondingly, a diminution of the virulence of the melitensis in its passage through the cow?

[12] Undulant Fever by Bernard Anché, Annales d' Hygiene, 1925, N. S., 3: 137-176. Abstracted by M. C. Brown.

The innumerable studies lately undertaken permit the conclusion that the two organisms are identical. They are as closely similar as the various types of meningococci, of bacilli dyentericae, of streptococci, etc. Some authors, notably Khaleb, incline to consider them as of a single species under the name Brucella, which would include the *Micrococcus melitensis,* the *Micrococcus paramelitensis* and the *Bacillus abortus.* Burnet reaches the same conclusions, and that they differ only in their pathogenic power in regard to man. Of the two types,



one is adopted into the bovine organism, the other into the organisms of the goat and man, neither remaining strictly localized in these species of animals. The abortus develops in the porcine organism where it is more virulent than in the cow.

Jules Crepin believes there is no caprine melitensis, that the caprine species has nothing in common with Mediterranean fever, that it never appears in flocks of goats in goat-keeping lands which are under sanitary regulations, that there is no melitococcia except where the Maltese goat circulates and sows his unsanitary microbes. The arguments given are not convincing and it is still believed that goats and sheep are the most important carriers of Malta fever.

Contagion in undulant fever is recognized as due to milk and to urine; with milk are associated cream, butter and cheese.

Insects are also accused as carriers of infection and much testimony is given for and against mosquitos and ordinary flies. No positive results have been produced. The transmission from mother to offspring has been studied with results favorably negative on the whole.

In concluding his lengthy work, Auché lists facts undeniable as proved by data from widely distributed sources.

The undulant fever is constantly increasing and seems to be "a malady of the future" according to the expression of Nicolle, unless we oppose it with efficacious barriers. All of Southeastern France is invaded, all French territory is menaced.

Propagation is most often through the intermediary of the goat, less often by sheep, sometimes through interhuman contagion.

Prophylactic measures may be summed up as follows:

1. Immediate announcement of the malady as soon as diagnosis is made.
2. Isolation of the patient and disinfection: urines and everything stained by urine destroyed; the patient, all objects of toilette, of bedding or furnishing, carefully disinfected after recovery.
3. Precaution taken by all persons caring for the patient against personal infection and against carrying it outside the habitation of the patient.
4. In case of epidemic, to forbid the drinking of unboiled milk, consumption of non-pasteurized cheese, etc., the eating fruit or vegetables gathered off the ground.
5. Recommendation against drinking raw milk from uncertified flocks.
6. Inspection of suspected flocks; destroying infected animals.
7. Scrupulous disinfection of stables.
8. Vaccination, in countries infected, of goats and sheep, old and young, employing approved vaccines.
9. Vaccination of persons exposed to contamination.
10. In all laboratory reaction (sero-agglutinations, intradermo-reactions, etc.), to replace the *Micrococcus melitensis,* which has caused numerous infections, by the *Bacillus abortus* which has never caused any, even the slightest, laboratory infection.

STATE VETERINARY LIBRARY DEC 23 '27

# STUDENT POPULATION OF AMERICAN VETERINARY COLLEGES FOR THE PAST EIGHT YEARS

## Compiled from Deans' Reports by David S. White, Columbus, Ohio

| Name of College | 1920-1921 | | | | | | 1921-1922 | | | | | | 1922-1923 | | | | | | 1923-1924 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | First Year | Second Year | Third Year | Fourth Year | Special | Total | First Year | Second Year | Third Year | Fourth Year | Special | Total | First Year | Second Year | Third Year | Fourth Year | Special | Total | First Year | Second Year | Third Year | Fourth Year | Special | Total |
| Alabama | 20 | 15 | 12 | 6 | | 53 | 10 | 5 | 14 | 12 | | 41 | 6 | 5 | 8 | 13 | | 32 | 3 | 2 | 4 | 7 | | 16 |
| Colorado | 26 | 22 | 20 | 20 | | 88 | 23 | 13 | 19 | 16 | 1 | 72 | 17 | 14 | 12 | 19 | 2 | 64 | 10 | 15 | 12 | 13 | 1 | 51 |
| Georgia | 7 | 7 | 3 | 4 | | 21 | 9 | 5 | 5 | 2 | | 21 | 7 | 7 | 6 | 5 | | 25 | 2 | 8 | 7 | 5 | | 22 |
| Iowa | 30 | 24 | 18 | 22 | | 94 | 28 | 17 | 18 | 19 | 6 | 88 | 25 | 22 | 15 | 17 | | 79 | 32 | 24 | 18 | 16 | | 90 |
| Kansas | 9 | 20 | 13 | 18 | 1 | 61 | 12 | 10 | 23 | 10 | 4 | 59 | 10 | 14 | 18 | 22 | 1 | 65 | 11 | 10 | 16 | 16 | | 53 |
| Michigan | 1 | 8 | 4 | 8 | | 21 | 11 | 5 | 6 | 6 | 1 | 29 | 13 | 10 | 9 | 7 | | 39 | 5 | 10 | 11 | 8 | | 34 |
| New York | 13 | 32 | 15 | 16 | 2 | 78 | 15 | 13 | 29 | 16 | 4 | 77 | 31 | 11 | 16 | 31 | 3 | 92 | 29 | 25 | 10 | 19 | 3 | 86 |
| Ohio | 19 | 30 | 30 | 25 | | 104 | 14 | 13 | 24 | 35 | | 86 | 19 | 12 | 15 | 25 | 4 | 75 | 13 | 12 | 22 | 20 | 5 | 72 |
| Ontario | 24 | 32 | 22 | 17 | | 95 | 13 | 23 | 35 | 19 | | 90 | 17 | 11 | 22 | 37 | | 87 | 16 | 13 | 15 | 27 | | 71 |
| Pennsylvania | 4 | 8 | 7 | 11 | | 30 | 11 | 5 | 8 | 7 | | 31 | 11 | 11 | 5 | 8 | 2 | 37 | 14 | 10 | 10 | 5 | 2 | 41 |
| Texas | 1 | 5 | 2 | 6 | 4 | 18 | 5 | 1 | 2 | 4 | | 12 | 6 | 6 | 2 | 2 | | 16 | 11 | 4 | 5 | 2 | | 22 |
| Washington | 3 | 1 | 6 | 12 | | 22 | 7 | 2 | 7 | 6 | | 22 | 6 | 5 | 4 | 4 | | 19 | 8 | 8 | 4 | 6 | | 26 |
| | 157 | 204 | 152 | 165 | 7 | 685 | 163 | 113 | 192 | 154 | 16 | 638 | 168 | 128 | 132 | 190 | 12 | 630 | 154 | 141 | 134 | 144 | 11 | 584 |

| Name of College | 1924-1925 | | | | | | 1925-1926 | | | | | | 1926-1927 | | | | | | 1927-1928 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | First Year | Second Year | Third Year | Fourth Year | Special | Total | First Year | Second Year | Third Year | Fourth Year | Special | Total | First Year | Second Year | Third Year | Fourth Year | Special | Total | First Year | Second Year | Third Year | Fourth Year | Special | Total |
| Alabama | 6 | 3 | 6 | 6 | 1 | 22 | 4 | 4 | 3 | 5 | | 16 | 4 | 4 | 4 | 3 | 2 | 17 | 4 | 4 | 4 | 4 | 2 | 18 |
| Colorado | 6 | 5 | 14 | 11 | | 36 | 10 | 10 | 15 | 12 | 1 | 48 | 20 | 5 | 11 | 11 | 2 | 49 | 16 | 19 | 7 | 9 | 3 | 54 |
| Georgia | 7 | 2 | 7 | 7 | | 23 | 3 | 6 | 2 | 6 | | 17 | 4 | 1 | 5 | 2 | 1 | 13 | 6 | 4 | 1 | 5 | | 16 |
| Iowa | 27 | 27 | 17 | 17 | 1 | 89 | 35 | 14 | 26 | 15 | | 90 | 37 | 25 | 17 | 26 | 4 | 109 | 39 | 32 | 22 | 16 | 4 | 113 |
| Kansas | 20 | 8 | 11 | 16 | 5 | 60 | 21 | 14 | 10 | 11 | 2 | 58 | 18 | 17 | 19 | 5 | 5 | 64 | 18 | 19 | 14 | 18 | 5 | 74 |
| Michigan | 11 | 7 | 10 | 10 | 2 | 40 | 4 | 7 | 6 | 11 | 4 | 32 | 11 | 5 | 1 | 11 | 3 | 31 | 6 | 7 | 10 | 4 | 7 | 34 |
| New York | 19 | 26 | 21 | 10 | 5 | 81 | 24 | 18 | 26 | 20 | 2 | 90 | 30 | 22 | 17 | 27 | 7 | 103 | 39 | 28 | 22 | 18 | 7 | 114 |
| Ohio | 7 | 7 | 23 | 30 | 2 | 69 | 17 | 9 | 7 | 21 | 1 | 55 | 25 | 10 | 12 | 8 | 4 | 59 | 49 | 19 | 15 | 13 | | 96 |
| Ontario | 23 | 16 | 15 | 15 | | 69 | 20 | 23 | 14 | 12 | 1 | 70 | 15 | 21 | 21 | 10 | 1 | 68 | 23 | 15 | 21 | 19 | 1 | 79 |
| Pennsylvania | 25 | 10 | 10 | 10 | 1 | 56 | 15 | 23 | 9 | 10 | 1 | 58 | 15 | 15 | 23 | 9 | 3 | 65 | 21 | 17 | 9 | 22 | 3 | 72 |
| Texas | 3 | 6 | 5 | 6 | | 20 | 0 | 1 | 4 | 5 | | 10 | 1 | 3 | 3 | 3 | | 10 | 3 | 1 | 3 | 2 | | 9 |
| Washington | 10 | 6 | 8 | 3 | | 27 | 13 | 12 | 5 | 8 | 1 | 39 | 14 | 17 | 7 | 4 | | 42 | 21 | 21 | 18 | 8 | | 68 |
| | 164 | 123 | 147 | 141 | 17 | 592 | 166 | 141 | 127 | 136 | 13 | 583 | 194 | 145 | 140 | 119 | 32 | 630 | 245 | 186 | 146 | 138 | 32 | 747 |

# MATTERS OF CURRENT INTEREST

F. A. Laird, state veterinarian, Springfield, was elected president of the Illinois Veterinary Medical Association at its annual meeting, Nov. 28-29 in Chicago. Harry Caldwell, Wheaton, was elected vice-president.

O. D. Campbell, Warren, Ark., has been reappointed a member of the State Veterinary Examining Board. The appointment is for two years.

Darwin C. Grinnell, Libertyville, Ill., has been reappointed county veterinarian for Lake County. The appointment is for a period of two years.

J. M. Atteberry, Albion, Ill., has been appointed a state tuberculosis inspector for the Department of Animal Husbandry. The position will require all of Dr. Atteberry's time, but he will continue to reside in Albion, where he is a member of the city council.

H. T. Clarno, Farmer City, Ill., has been appointed county veterinarian for Piatt County. Dr. Clarno will give up his practice at Farmer City and devote his entire time to county work.

W. Sidener, Watseka, Ill., has been appointed a state tuberculosis inspector for the Illinois Department of Animal Husbandry. Dr. Sidener's headquarters will be in Chicago.

J. R. Taylor, Vandalia, Ill., has been appointed county veterinarian for Fayette County. Dr. Taylor has served two Illinois counties in this capacity previously, first in Moultrie County where he began the work in 1924, and following that in McHenry County.

W. Calvin Nickel, Nazareth, Pa., was elected coroner of Northampton County at the November elections. He was nominated on both the Democratic and Republican tickets.

Thos. G. Kenney of Wasco, Oregon, and formerly of Bismarck, N. Dak., has been appointed county veterinarian of Lincoln County, Oregon, at a salary of $2,500 a year and expenses. Dr. Kenney will make his headquarters in Toledo, Oregon.

H. L. Foust, formerly with the North Dakota Agricultural College at Fargo, has been appointed assistant in the Department of Anatomy in the Iowa State College at Ames.

W. J. Stone, Joplin, Mo., has just completed the erection of a $15,000 home adjoining his hospital on North Main Street. Dr. Stone has established a very profitable small animal practice in Joplin and vicinity.

For the coming year, R. S. Chamberlain of Romero, Texas, will be associated with H. M. Martin of Nara Visa, New Mexico.

G. Leroy Cheney and James J. Flaherty have combined their veterinary practices, and in the future will conduct the business under the name of Cheney and Flaherty with offices and hospital at 40 Whiting St., New Haven, Conn.

Capt. S. R. Tufts, M. R. C. V. S., of Monaghen, Irish Free State, has located for practice in Morristown, N. J. Capt. Tufts was formerly a member of the Royal Army Veterinary Corps, and served in India and in the World War with the 17th Lancers.

G. H. Hines, Hume, Ill., is erecting what is said to be one of the finest veterinary hospitals in Eastern Illinois. Dr. Hines has practiced in Hume for a number of years.

After an absence of a year, H. H. Tucker has resumed his practice in Crowley, La. Recently Dr. Tucker has been employed with the Purity Dairy Products Company of Beaumont, Texas, of which he was a part owner.

M. L. Patterson has opened an office for practice at the Union Stock Yards, Benicia, Calif. Dr. Patterson has practiced for fourteen years in Kings County, California.

Bailey E. Chaney, formerly of Nacogdoches, has located for practice at Magnolia, Texas. Dr. Chaney is a graduate of this Chicago Veterinary College, and has specialized in small animal practice.

E. R. Steel, formerly of Grundy Center, Iowa, has built, equipped and recently opened a hospital for small animals in Kansas City, Mo. Dr. Steel served the Iowa State Veterinary Medical Association for a number of years as secretary, and holds that office at the present time in the Missouri Valley Veterinary Association.

George H. Hecke, state director of agriculture of California, has filed information against a meat company of Modesto, charging their attempt to bribe state veterinary inspectors located at the plant.

H. E. Bemis, professor of surgery in the Veterinary Department of the University of Pennsylvania, addressed the Schuylkill Valley Veterinary Club at its meeting in Redding, November 16th, on the subject of local anesthesia and anesthetics. The annual meeting of the Schuylkill Valley Veterinary Club will be held December 21st.

Mrs. R. R. Gloyd, wife of Dr. R. R. Gloyd, of Butler, Mo., is recovering from an operation for the removal of the gall bladder. Mrs. Gloyd has been ailing for more than a year.

Plans are already receiving attention to arrange a visit to the Mayo Institutions for those who attend the 1928 meeting of the A. V. M. A. in Minneapolis. It is hoped to arrange for this on the day preceding the opening of the meeting so that those going to Minneapolis from the south and east can stop over at Rochester enroute and thus be at no additional travel expense.

Owing to the loss of hogs in Dixon County, Kansas, R. R. Dykstra and E. J. Frick, of the Department of Veterinary Medicine, Kansas State Agricultural College, were called to Abilene for a conference with the veterinarians of the county recently. The conclusion arrived at as to the failure of vaccination in a number of instances in conferring immunity to cholera was that it was owing to the unhealthy condition of the hogs at the time of vaccination due to necrotic enteritis and other causes.

## A NEW GERMAN VETERINARY PUBLICATION

Therapeutische Monatshefte für Veterinärmedizin is the name of a new veterinary journal published in Hoechst am Main, Germany. It deals, first of all, with matters of veterinary practice from a therapeutic aspect. It does not confine itself however, with internal medicine but deals to an equal degree with surgery, obstetrics, tropical diseases, diseases of small animals, etc.

## OBITUARY NOTICES

C. L. Chollar, a practicing veterinarian at Maysville, Ky., and State Live Stock Inspector for his county, died at his home November 6th as a result of injuries received in an automobile accident two years ago. Dr. Chollar was 52 years of age. He practiced in Maysville thirteen years, going there from Kansas. He was a graduate of the Ontario Veterinary College, 1908. He is survived by a widow and two daughters.

Carlos Byler died at the home of his parents at Ethel, Mo., November 2nd. Dr. Byler practiced at Callao, Mo., until failing health some months ago necessitated his giving up work. Death was due to tuberculosis. Dr. Byler was an only son, and unmarried; both parents survive him.

Mrs. Irene Lee Howard, wife of Dr. S. R. Howard, died on November 7th at her home in Hillsboro, Ohio. Dr. Howard has practiced in Hillsboro for many years.

H. G. Stephens, Independence, Kans., lost his father recently by death from apoplexy. Mr. Stephens lived on a farm near Iola, Kansas, and was 73 years of age.

George W. Stiles of the Federal Bureau of Animal Industry, Denver, Colo., has been devoting his time to a study recently of anaplasmosis and making a survey of Colorado to ascertain if the disease has extended from Oklahoma and Kansas into that state.

## CHANGES IN ARMY VETERINARY SERVICE

### Regular Army

Colonel Robert Vans Agnew, now on temporary duty at Fort Oglethorpe, Georgia, is relieved from further assignment and duty at Fort McPherson, Georgia, and will report to the commanding officer Fort Oglethorpe, for duty.

The appointment of Second Lieutenant John Lloyd Owens, Veterinary Corps Reserve, as secont lieutenant, Veterinary Corps, Regular Army, with rank from October 29, 1927, is announced. Lieutenant Owens will proceed to Carlisle Barracks, Pa., and report to the commanding officer that station for duty as assistant to the station veterinarian.

Major Raymond A. Kelser is assigned to duty at the Army Medical School, Army medical center, Washington, D. C., to take effect upon completion of his present tour of foreign service, and will join that station at the proper time, in accordance with orders to be issued by the commanding general Philippine Department.

Captain Francois H. K. Reynolds is relieved from his present assignment and duty at the Army Medical School, Army medical center, Washington, D. C., to take effect at such time as will enable him to comply with this order, and will proceed at the proper time to New York City and sail on or about March 7, 1928, via Government transportation, to the Philippine Islands. Upon arrival in Manila, Captain Reynolds will report to the commanding general Philippine Department for assignment to duty as a member of the United States Army Medical Department Research Board.

Second Lieutenant Verne C. Hill is relieved from further assignment and duty at Fort Bliss, Texas, and will proceed to Camp Marfa, Texas, and report to the commanding officer that post for assignment to duty.

First Lieutenant Herbert M. Cox is relieved from further assignment and duty at Fort D. A. Russell, Wyo., and will proceed to Fort Des Moines, Iowa, and report to the commanding officer that post for duty.

The relief of Captain Louis L. Shook from additional duty at headquarters District of Washington, effective as of November 12, 1927, is announced.

### Reserve Corps

New acceptances:

Loope, Clarence Leroy, 2nd Lt., Box 465, Cazenovia, N. Y.; Hogg, James Seely, 1st Lt., 20 Darling St., Wilkes Barre, Pa.; Phillips, Ross M., Capt., Gibbon, Nebraska; Reid, George Forrest, 2nd Lt., Irene, So. Dak.

Separations:

Brostrom, Frank Oscar, 1st Lt., Resigned 11-1-27.

DEC 23 '27

## COMING MEETINGS

The annual meeting of the Kansas Veterinary Medical Association will be held at Wichita, January 4 and 5, 1928. For program address: Chas. W. Bower, 1128 Kansas Ave., Topeka, Kans.

---

The annual meeting of the Iowa Veterinary Medical Association will be held at the Savery Hotel in Des Moines, January 17-19, 1928. A clinic will follow at Ames on the 20th. For program address: C. J. Scott, secretary, Knoxville, Iowa.

---

The winter meeting of the Wisconsin Veterinary Medical Association will be held in Madison, January 9-12, 1928. For program address: B. A. Beach, secretary, University of Wisconsin, Madison, Wis.

---

The second annual Veterinary Conference conducted co-operatively by the University of Missouri and the Missouri Veterinary Medical Association will be held at Columbia, January 24-27, 1928. For program, address: J. D. Ray, secretary, 401 New Center Bldg., Kansas City, Mo., or J. W. Connaway, chairman, Department of Veterinary Science, Columbia, Mo.

---

The first meeting of the Southwestern Tuberculosis Conference will be held in conjunction with the meeting of the Oklahoma Veterinary Association at the Huckins Hotel, Oklahoma City, February 6-8, 1928, instead of at Tulsa, as previously announced. For program, address: C. H. Fauks, secretary, Oklahoma City, Okla.

---

The annual meeting of the Minnesota Veterinary Medical Association will be held at Minneapolis, January 12 and 13, 1928. For program, address: C. P. Fitch, secretary, University Farm, St. Paul Minn.

---

The annual Veterinary Conference held at the University of California under the auspices of the University and the California Veterinary Medical Association will be held at Davis, January 3-6, 1928. For program, address: Fred M. Hayes, University Farm, Davis, Calif.

---

The Iowa State Poultry Show will be held at Iowa City, December 28-31, 1927. This poultry show is very popular with Iowa veterinarians, a number of whom will be among the exhibitors this year. For further information, address: Mr. A. M. Hotz, secretary, Iowa City, Iowa.

---

The next meeting of the Intermountain Livestock Sanitary Association will be held at Ogden, Utah, January 10 and 11, 1928. For program, address: W. D. Wright, secretary, 312 Federal Bldg., Ogden, Utah.

---

The annual meeting of the Ohio State Veterinary Medical Association will be held at the Deshler-Wallick Hotel, Columbus, January 11 and 12, 1928. For program, address: W. R. Hobbs, secretary, Ohio State University, Columbus, Ohio.

---

The next meeting of the Virginia State Veterinary Medical Association will be held at Richmond, January 12, 1928. For program, address: Geo. C. Faville, secretary, Hampton Institute, Hampton, Va.

---

The Twentieth Annual Conference for Veterinarians will be held at the New York State Veterinary College, Cornell University, Ithaca, N. Y., on January 12 and 13, 1928. For program, address: V. A. Moore, Dean, New York State Veterinary College, Ithaca, N. Y.

---

The annual meeting of the Indiana Veterinary Medical Association will be held at Indianapolis, January 17-19, 1928. For program, address: R. H. Boyd, secretary, 1422 N. Capitol Ave., Indianapolis, Ind.

---

The next meeting of the Colorado Veterinary Medical Association will be held at Denver, January 18, 1928. For program, address: R. F. Bourne, secretary, Fort Collins, Colo.

---

The Michigan State College will hold a short course for veterinarians at the college in East Lansing, January 23-27, 1928. For program, address: Ward Giltner, Dean, Veterinary Department, Michigan Agricultural College, East Lansing, Mich.

---

The annual meeting of the South Dakota Veterinary Medical Association will be held at the Cataract Hotel, Sioux Falls, S. Dak., January 25 and 26, 1928. For program, address: Ben Anderson, secretary, Canton, S. Dak.

---

At the Wisconsin Veterinary Medical Association meeting in Madison, January 9-12, the program will stress especially aids to diagnosis in practice. Experts on sterility and small animal practice from out of the state will appear on the program.

---

A meeting of the Interstate Veterinary Medical Association, including veterinarians from Iowa, Nebraska, South Dakota and Minnesota, was held at Sioux City, November 16 and 17. It is planned to make the meeting an annual affair.

---

A meeting of the Northeastern Pennsylvania Veterinary Medical Club was held October 27th and 28th at the certified dairy farm of the International Correspondence School, at Dalton, Pa. Prof. G. A. Dick of the Veterinary Extension Department of the University of Pennsylvania, T. E. Munce, State Veterinarian, and H. R. Church of the Pennsylvania Bureau of Animal Industry, attended the meeting and contributed to the program.